INSIDE: THE BISON BATTLE HEATS UP

Montana Outdoors

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NOVEMBER–DECEMBER 2013

LAST STAND OF THE SAGE-GROUSE

IN THIS ISSUE:

TOP SPOTS FOR NORDIC SKIING

WHY MISSOULA'S ELK HERD WON'T BUDGE

FLYING SOUTH—TO MONTANA?—FOR THE WINTER

VIEWING BITTERROOT VALLEY OSPREYS FROM AUSTRALIA

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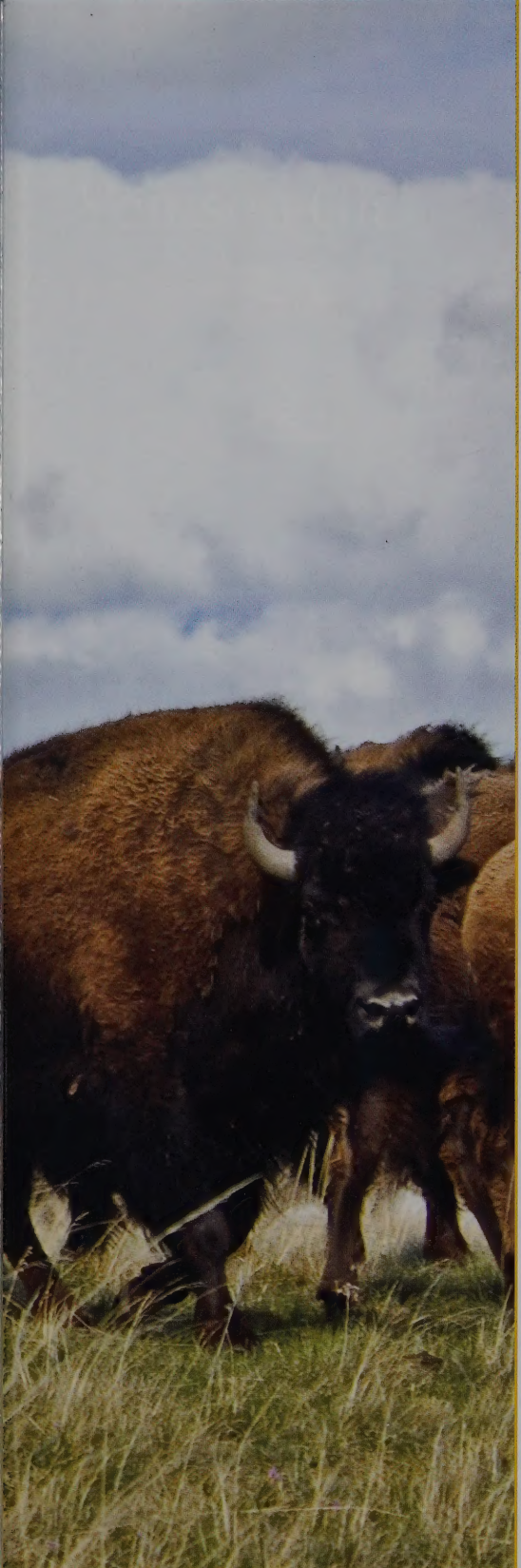

HUNGRY TOO
There's not enough grass for both bison and cattle on federal lands. The result? A new range war. See page 34. Photo by Tony Bynum.

FRONT COVER
In two years the U.S. Fish & Wildlife Service will decide whether to list the sage-grouse. See what Montana is doing to prevent that outcome on page 16. Photo by Noppadol Paothong.

The Best 100

I was absolutely elated to see Bighorn Canyon make your Best 100 of Montana list (July-August). Few know about this treasure. I have to correct your statement that Bighorn Lake was created in 1956. In fact, Yellowtail Dam construction began in 1961 and finished in 1967. Also, while the Devils Canyon Overlook is a great view of Bighorn Canyon, it can only be accessed from Wyoming. On the Montana end is an equally terrific view from Pretty Eagle Point above the marina. Thanks for your great magazine.

Doug Hallesy
Las Vegas, NV

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Montana Outdoors
JULY–AUGUST 2013

Why a "Best" 100?

One problem with Montana—though you can hardly call it that, even if it is true—is that the state is so darned big and diverse. There's actually too much of it to take in. In a lifetime, a person couldn't hike all the hikes, hunt every game species, catch all the different coldwater and warmwater fish, spot the state's 468 bird species, and see all the geologic marvels and scenic wonders that adorn calendars and tourism brochures. Two lifetimes. Twenty lifetimes.

So a person—resident and visitor alike—can be left wondering exactly which of these many things he or she should see and do. What are the *essential experiences* that allow a person to say, Yes, I've seen and fully taken part in the best of what Montana's outdoors has to offer? Where would you even begin?

What are the essential experiences that allow a person to say, Yes, I've seen and fully taken part in the best of what Montana's outdoors has to offer?

That's where we come in. Over the past year *Montana Outdoors* asked naturalists, tourism experts, backcountry guides, outdoor writers, and other FWP staff members to select what they would consider Montana's essential out-of-doors sights and activities. We received hundreds of suggestions, then narrowed those down to what we're calling the "Best 100."

If you want, call it a bucket list. We prefer to think of it as a catalog of outdoor opportunities—things people can see and do to fully appreciate Montana's mountains, forests, prairies, rivers, lakes, and the fish and wildlife that live there.

We made sure to select as many sights and activities as possible that are open to people of all ages and abilities—across the state and throughout the seasons. Some, such as seeing the Chinese Wall or driving Going-to-the-Sun Road, are unique to Montana. Others, like tying a fly, picking huckleberries, or listening to sage-grouse "boom," are things you can experience elsewhere but are nevertheless intrinsic to our state's outdoors culture.

In keeping with FWP's mission, most of what's on the list has something to do with fisheries, wildlife, native plants, or natural landscapes.

For lack of space, we had to pass up many must-see sights or must-do activities. No doubt we failed to mention one of your favorites. If so, let us know. We hope to compile another "best" list down the road.

In the meantime, we hope this special issue of *Montana Outdoors* introduces you to places you never knew existed. Or reminds you of activities or places you once heard about but forgot. Or inspires you to try a completely new activity, maybe even something a bit out of your comfort zone.

As for whether this list truly represents Montana's "best" 100, well, who can say? All we know is that if someone wants to experience the highlights of our state's outdoors, this is not a bad place to start.

—Tom Dickson, Editor

MONTANA OUTDOORS | 1

Let me say up front that I have hugely enjoyed your July-August 2013 issue, and I feel very fortunate to have been a Montana resident my entire life. I have done 60 of the listed items. I see that you have decided to add to the 5 percent of Yellowstone National Park that is in Montana (#73) by annexing about one-half mile of Wyoming to have the Boiling River as #100. Even the 0.46 nautical mile dip in the official state line below 45 degrees north there barely catches the vault toilet in the parking lot, and the closest soak pool is another 0.38 mile into Wyoming.

Mike Lesnik
Fishtail

Best 103?

The Best 100 issue sure gave me a few additional bucket list places to visit. Thank you. But visiting the C. M. Russell Museum in Great Falls, listening to a coyote serenade under the stars, or making and drinking cowboy coffee didn't make the top 100? They're on my list, and on my wife Lynette's too.

Wayne Laessig
Vacaville, CA

Again to pay the price

I hope the question of what to do with large carnivores ("More Fangs in the Forest," September-October) was rhetorical. Everyone knows the answer will be to kill them. These beautiful creatures, which are losing their habitat faster than you can say, "Shoot 'em in the head," will once again pay the price. Humans do not have a privileged access to reality. A bullet through a bear's heart is the same reality to the bear as a bullet into a person. As a former Montanan, I know the answer can usually be found by following the money. This is no exception. I realize that most of your readers are hunters, but not all of us are.

James Altman
Lake City, FL

Roughly 50 percent of our subscribers hunt (defined as having purchased a hunting license at least once in the past three years).

Beckman WMA

I wanted to say thank you for a great story on the Beckman Wildlife Management Area ("Beckman's Big Surprise," September-October) and to FWP staff and others for making that place a reality. I also wish I could thank Mr. Beckman himself, a heroic example of a humble sportsman and an exemplary conservationist. My hat is forever tipped in admiration.

Kevin Kappenman
Bozeman

Sockless

I subscribed to your magazine last year because it appeared to offer information that would interest me as a new resident. Soon afterward, I became a big fan because of the photography in each issue. I wasn't aware of the annual photo issue until the 2013 version arrived. Wow! You knocked my socks off.

Steve Shake
Plains

Overzealous application

In the article "Open Space Invaders," (July-August 2011) where you show before and after photos of Dougherty Mountain Wildlife Management Area, the caption states that sometimes using broadcast herbicides can be the best solution for controlling invasive plants. The problem is that those photos show the effects of biocontrol insects on leafy spurge over time. I know, because I'm an independent biocontrol contractor who, along with Dave Dziak, FWP manager of the WMA, released the insects and took photographs of that very area. In fact, the photos also show dead woody species that were killed by overzealous application of herbicides.

Jeff Copeland
Missoula

Mr. Copeland is correct about the photos and that improper use of broadcast herbicides can kill non-targeted trees and shrubs. Still, spraying chemicals is sometimes the best option for controlling large-scale invasive plant infestations.

Write to us

We welcome all your comments, questions, and letters to the editor. We'll edit letters as needed for accuracy, style, and length. Reach us at Montana Outdoors, P.O. Box 200701, Helena, MT 59620-0701. Or e-mail us at tdickson@mt.gov.

Venison Glaze and Middle Eastern Marinade

By Tom Dickson | Cook Time: 10-12 min. | Serves: 2-3

A few months ago while eating lunch at a central Montana cafe, I overheard a fellow a few stools down telling the waitress how he prepares venison. "The gamy taste is all in the blood," he told her. "I soak my venison in milk overnight and there's almost no gamy taste."

For most of my life I've been hearing that same advice about ridding the so-called "gamy" taste of venison by soaking it in milk, cola, buttermilk, vinegar, salt water, you name it. All to "get the blood out," because supposedly the blood tastes terrible.

Is the bath necessary? It hasn't been for the deer, pronghorn, bighorn sheep, and elk many of my friends and I have killed and consumed over the years. We've yet to come across a "gamy"-tasting animal. But maybe we've been lucky. Or maybe it's because we generally shoot does and cows rather than rutting males.

I suspect that much of what's called "gamy" is actually spoiled venison that has sat in the sun or the back of a hot pickup so long that bacteria grew on and in the meat. To prevent this, cool the carcass as soon as possible by keeping it in the shade or removing the skin. With an elk, cut open the hip to the bone and break open the upper spine from the inside with a hatchet.

Another source of bad taste can be the fat and silverskin. Unlike domestic livestock, the fat of deer, elk, and pronghorn tastes terrible. That's the source of the yucky flavor that turns so many people off. When cooked, venison fat tastes like burned leather.

Venison blood actually tastes sweet. But it turns bitter and takes on a "liver" taste when overcooked. That's why most chefs serve venison medium rare, as they do liver.

All this is just the opinion of one amateur hunter-cook. But I've read a lot on the topic, talked to many chefs and butchers, and cooked tons of venison.

I generally prefer my venison steaks unadorned except for seasoning with salt and pepper, but occasionally I enjoy some added flavors. Here are a glaze and a marinade that friends and family have enjoyed. No milk required.

—Tom Dickson is editor of Montana Outdoors.

SHUTTERSTOCK

MONTANA VENISON GLAZE

This is a combination of several recipes gleaned from various cookbooks over the years.

3 T. maple syrup
1 T. chili powder
1 T. black pepper
1 t. cumin
½ t. coriander
¼ t. ground cloves
3 cloves garlic, minced or crushed
3 T. olive oil
2 venison steaks

PREPARATION

Mix glaze ingredients in a bowl. On high flame, grill steaks 3 minutes on each side. Rub paste on each side of steaks, grill each side 2 more minutes, and remove. Cover with foil and let sit for 5 minutes before serving.

MIDDLE EASTERN KEBAB MARINADE

This recipe most closely matches my memory of street vendor kebabs I ate in Turkey and Greece many years ago.

⅓ C. olive oil
1 T. white vinegar
1 t. cumin
½ t. coriander
½ t. paprika
1 clove garlic, minced or crushed
½ t. salt
1 pound venison, cut into 1.5-inch chunks

PREPARATION

Mix marinade ingredients in a bowl. Place in a Ziploc bag, add venison, and seal tightly. Marinate for 4 to 8 hours. Remove venison, thread on skewers, and grill.

Serve with warm pita bread, chopped tomatoes, and tzatziki sauce:

- 8 oz. Greek yogurt
- 1 cucumber, peeled, seeded, diced, with liquid squeezed out in a towel
- 1 T. olive oil
- 1 t. lemon juice
- 2 T. minced or crushed garlic
- ½ t. dried dill
- Salt and pepper to taste

Combine all ingredients and process in a food processor or blender until well combined. Cover and refrigerate for at least 1 hour before serving.

Montana's wolf management challenges

Less than a decade after wolves from Canada were placed in Yellowstone National Park, 153 of the wild canids were making a living in Montana, where the overall population had already grown beyond federal recovery goals.

That year, 2004, the U.S. Fish & Wildlife Service approved the state's first Gray Wolf Conservation and Management Plan, developed by a state advisory council. The USFWS made no bones about the plan's quality. "It's a class act," federal officials wrote.

But not everyone was pleased with the council's work. A critic countered, "The Montana plan is festooned with enough ribbons and bows to make it appear reasonable, but when you tear off the fancy wrapping and look inside, it opens up a Pandora's box of troubles for wolves."

And back and forth it still goes.

Meanwhile, in 2011, the gray wolf in the Northern Rockies was removed from the federal endangered species list. Montana's wildlife managers were then able to fully use the state's science-based plan to conserve and manage wolves as a native species that's here to stay.

The job's never been simple. Consider recent headlines like this one from Bloomberg.com: "Murder of Yellowstone Wolves Threatens Area Renaissance."

Yellowstone and Glacier National Parks (YNP and GNP) are positioned on Montana's southwestern and northwestern borders. They were essentially incubators for wolf recovery in the Northern Rockies, and remain a kind of protected refuge for wolves in the West.

DONALD M. JONES

Above and below the din, FWP will keep working to ensure that wolves roam this state in balance with all of Montana's wild, natural, and domestic resources.

Wolves were placed in YNP and neighboring Idaho to repopulate the West and eventually be managed by the states they would come to inhabit. Wolves introduced to YNP in 1995 and 1996, for instance, colonized Montana by migrating north—and wolves that began to naturally migrate from Canada to GNP in the 1980s wandered farther south into Montana. Wolves from central Idaho also populated western Montana.

In short, most Montana wolves—more than 600 today—are the progeny of wolves that migrated out of our national parks and Idaho wilderness areas.

Similar to other migratory wildlife—such as elk, deer, and bison—wolves that currently inhabit YNP pay no mind to boundaries. They can depart Yellowstone for any number of reasons, one of which is to join packs or form new packs in Montana.

Montana Fish, Wildlife & Parks exists to conserve and manage Montana's wildlife. Wildlife management often means hunting and exercising some means of wildlife population control to maintain a balance among an array of ecological factors—and with an eye toward social tolerance.

It's a challenge to strike that balance, but FWP wolf specialists and wildlife biologists are out there working to do that day after day.

They collar and track wolves. They use hand-held radios, trail cams, and reports submitted on the Internet by a vigilant public. They monitor den sites and traps. Before a trapped research animal is released, our wolf specialists take tissue samples, check for disease, and determine the size and sex of the animal. They work with landowners, approaching every depredation as a problem to resolve so it won't happen again.

About 50 wolves in Montana are now equipped with radio collars so that wildlife biologists can track movements, obtain counts, study reproduction rates and predator-prey relationships, and learn more about how, where, and why mortalities occur.

Some of Montana's collared wolves—and some that migrate here from YNP—are harvested by hunters or trappers. Others die from disease, accidents, fights with rival wolves, or trying to take down elk.

Above and below the din, FWP will keep working to ensure that wolves roam this state in balance with all of Montana's wild, natural, and domestic resources.

Montana has been solely managing the state's wolves since they were delisted in 2011, including successfully administering three hunting seasons. Contrary to what some critics of state management say, Montana's wolf population continues to thrive well above state and federal recovery thresholds. More important, wolves are now an accepted part of Montana's rich wildlife heritage.

Through it all, Montana has also recognized the importance of national park wolves by creating specific harvest quotas in special buffer zones near the parks. As for Yellowstone wolves, they'll continue to contribute ecologically to the system that has been responding to their presence for nearly 20 years.

M. Jeff Hagener

—**M. Jeff Hagener,** *Montana Fish, Wildlife & Parks Director*

Tom Reichner

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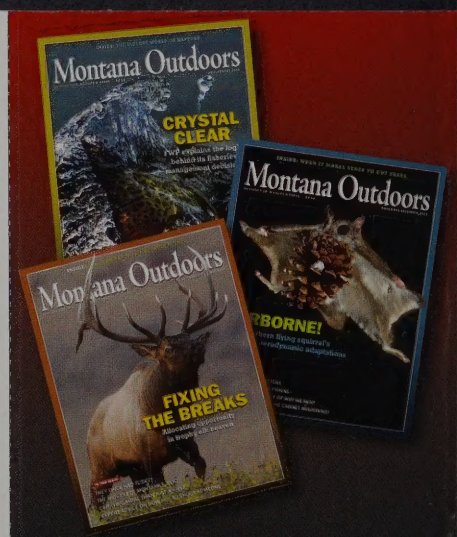

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SCOTT THOMPSON
Wildlife Biologist, Malta

"**A BIG THING OUT HERE** in Phillips County is managing large blocks of prairie to benefit sage-grouse and also pronghorn, mule deer, waterfowl, songbirds, and all the other native species that require large areas of sagebrush grasslands. The best way to accomplish that is by keeping cattle on the ground, like you see here in the background. What a lot of people who don't live in this region may not understand is that managed grazing is far better for prairies than the alternative, like converting it to cropland or some other use. An important part of my job is working with landowners and land-management agencies on grazing and land-management practices that keep livestock operations viable so we can maintain intact prairies, and at the same time maintain a home for wildlife species."

"I go out a lot in early winter looking for shots like this, and I can't tell you how many times I've frozen my tail off and ended up with a dud," says Helena photographer **JOHN LAMBING**. Not this time. Lambing says he "was out chasing winter sunrise photos" one morning in early December and reached the Missouri River near Cascade, about 30 miles south of Great Falls, right before sunup. "I key in on early season cold snaps. That vapor rising from the relatively warm water can produce an icy fog that coats the vegetation with a thick frost," he says. "It was about 10 below that morning, and at first the river valley was completely socked in with fog. But as the sun started to come up and warm the air, the fog started to lift, revealing the river below. When that pink came in across the horizon, everything just fell into place. All I had to do was take the picture." ■

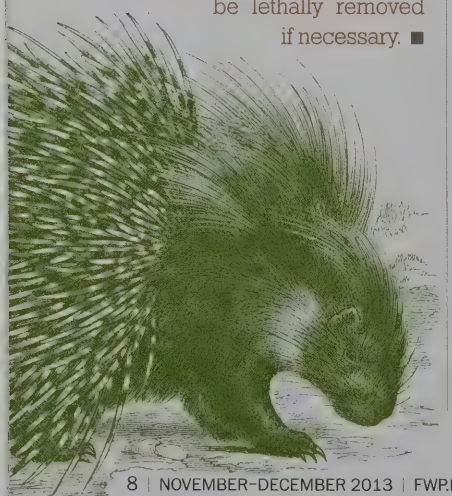
294

Number of bird species recorded in Montana.

Pass the salt

If you're wondering just what chewed your shovel handle or work gloves, it could be a porcupine. These gentle herbivores are attracted to the salt from sweat left on tool handles and leather gear. They also like resins in plywood and will chew siding off sheds.

The best deterrent is to cover chewed siding with light wire mesh found at hardware stores. Store tools, gloves, bridles, and other salty equipment inside. If porcupines are particularly pesky, use a large live trap to capture and move them several miles to another location. Because they are an unprotected species, they can also be lethally removed if necessary. ■



Grizzly bears have fared so well in Montana and elsewhere under federal protection that they could be delisted in the next several years.

ANNIVERSARY

40 years of saving species

On December 28, 1973, President Richard Nixon signed the Endangered Species Act (ESA) into law. The legislation came in response to public outcry over widespread environmental degradation across the country. Pollution and pesticides were blamed for declines in fish and wildlife species, including the nation's symbol, the bald eagle. The ESA was intended as the federal government's tool to stop species from going extinct. "Nothing is more priceless and more worthy of preservation than the rich array of animal life with which our country has been blessed," wrote the president at the signing.

Forty years later, has the ESA lived up to its promise?

Proponents say yes. The legislation, still widely popular across the country, has recovered several notable species, including the bald eagle. At its lowest in 1963, the population had dropped to 417 breeding pairs in the entire lower 48 states. Numbers had rebounded to more than 10,000 breeding pairs when the species was delisted in 2007. The act has also saved hundreds of other species from extinction and today provides a safety net for more than 1,400 species of fish, wildlife, and plants.

Opponents say no. They argue that the law stifles free enterprise and compromises private property rights. In the Northern Rockies, the ESA has been disparaged by many for allowing wolf populations to grow and spread while under federal management authority.

The ESA has been a mixed blessing in Montana, say FWP officials. Ken McDonald, head of the Wildlife Division, notes that Montana holds healthy populations of grizzly bears, gray wolves, wolverines, sage-grouse, and bull trout. "But because these species have disappeared from other states, federal restrictions have been, or threaten to be, imposed on Montana," he says.

Still, McDonald says, the ESA has helped many species that are in trouble even in Montana. "Probably the biggest thing is that the threat of [endangered species] listing brings landowners and developers to the table with us and the U.S. Fish & Wildlife Service," he says. "At the same time, we and the feds recognize that because so many species live on private property, ranchers and others making a living off the land need to remain economically viable and have incentives to conserve habitat."

A new USFWS program offers another approach to species conservation. Through the agency's Candidate Conservation Assurances with Agreements (CCAA) Program, participating landowners agree to specific habitat projects on their property. If the at-risk species in question gets listed, they don't have to do anything different from what they agreed to as part of a conservation plan they developed with federal biologists for their operation.

"Think of the ESA as an emergency room," says McDonald. "It works when it can address a trauma and stop a species from going extinct. But we want to avoid those emergencies in the first place. That's why we're advocating CCAAs and other conservation 'preventive care' with landowners." ■

CLOCKWISE FROM TOP LEFT: ILLUSTRATION BY MIKE MORAN; JAIME & LISA JOHNSON; AP PHOTO/PETROS KARADJIAS; BOONE AND CROCKETT CLUB; SHUTTERSTOCK; PUBLIC DOMAIN

CONSERVATION

The Mediterranean's grim harvest

It's easy to take for granted the way that wildlife is managed in Montana and elsewhere in the United States. Especially hunter harvest. We tend to forget that hunters in this country abide by strict regulations that restrict where, when, by what means, and how many animals may be killed.

A man tries to free a bird caught on a sticky lime stick that poachers in Cyprus use to trap songbirds.

Hunters assent to these restrictions because they understand that wildlife populations are not inexhaustible, that some animals must be conserved today so they can produce those of the future. That's the definition of wildlife conservation.

Such restraint is not exercised worldwide. Across much of the globe, wild animals are killed whenever the opportunity arises, whether legally or not. This goes for rhinos and elephants in Africa and also, surprisingly, for songbirds in the Mediterranean region and Middle East.

That's the topic of a disturbing article, "Last Song for Migrating Birds," in the October 2013 issue of *National Geographic*, about the slaughter of migrating shorebirds, raptors, songbirds, and waterfowl. Each year millions are killed for food, fun, or profit—even tiny warblers that yield only a single mouthful of meat. The birds are blasted with shotguns, caught in nets, or trapped on "lime sticks"—branches covered in sticky glue that holds a bird fast when it tries to perch. The wanton harvest is not unlike what occurred in the United States during the late 1800s. In fact, it was because of indiscriminate market hunting of bison, elk, and deer that conservationists developed the North American model of wildlife conservation.

"Wildlife conservation based on sound science and tightly regulated hunter harvest is nothing new in Montana and the rest of the United States, but it's by no means a global concept," says Ken McDonald, head of FWP's Wildlife Division.

Though the *National Geographic* article notes that in North America "bird hunting is well regulated and only naughty farm boys shoot songbirds," it could give all hunters a bad name. Readers may fail to make the distinction between conservationist-hunters, like most of those in the United States and Canada, and the countless indiscriminate shooters in Italy, Cyprus, Egypt, and elsewhere who kill kestrels, orioles, and godwits for sport or profit.

To read this article, which is available online, is to understand how far conservation in North America has come—and how far many other parts of the world still have to go. ■

IDENTIFICATION

Naming the antler parts

Antlers of most species in the deer family have the same general architecture. Listed here are the proper terms, according to Rory Putman, author of *The Natural History of Deer*. ("Pearlings" are the small round beads on antlers, while "gutters" are the grooves in the beam.) ■

Nice bull, Granddad

Old hunting photos remind us of when, many years ago, we first looked at sporting magazines and imagined ourselves kneeling next to a big bull or wide-racked muley buck. They also provide nostalgia for an imagined time when life was simpler and game more abundant (though populations are far higher today than 50 years ago). Many of us just like looking at the old vehicles, rifles, other sporting gear, and hunting outfits.

For all those reasons and more, the Boone and Crockett Club has recently published *Vintage Hunting Album*, a collection of trophy photographs dating to the early 20th century.

"This book is as close as we can get to a time machine when it comes to visiting the past," writes Kyle C. Krause, B&C Club publications deputy chair, in the book's introduction.

Vintage Hunting Album is available for $29.95 plus shipping online at boone-crockett.org or by calling (406) 542-1888. ■

We're So Outta Here

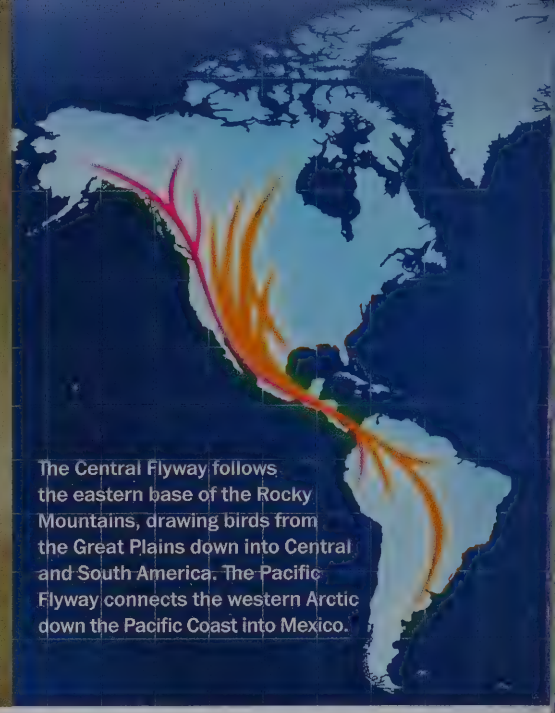
The wide variety of migrations from, through, and even to Montana each winter.

BY DAVE CARTY

It's winter, and across Montana animals are either sticking it out like the rest of us, or they've headed south. Most species staying here are mammals, reptiles, and amphibians, such as bears, rattlesnakes, and salamanders. Crows, ravens, and magpies tough it out, too, as do all of our upland game birds. But most birds leave. They may love our summers, but once they sense cold weather coming, they pack their bags and catch the next flight out of town.

◀ **LATE LEAVER** Sandhill cranes generally depart Montana, or pass though while traveling south from Canada, in late September or early October. Those that leave too late might get dusted with snow.

"The long-billed curlews that breed in Montana sometimes migrate all the way back to Mexico as early as late June."



The Central Flyway follows the eastern base of the Rocky Mountains, drawing birds from the Great Plains down into Central and South America. The Pacific Flyway connects the western Arctic down the Pacific Coast into Mexico.

FREEZE BABIES

Some birds skedaddle out of the Treasure State before summer has barely begun. "The long-billed curlews that breed in Montana sometimes migrate all the way back to Mexico as early as late June, which is amazing," says Steve Hoffman, executive director of Montana Audubon. Western tanagers and Bullock's orioles also exit early, departing Montana in late July and early August.

Mourning doves are notorious for skipping town just before Montana's dove hunting season opens September 1. Many a dove hunter has stood in a stubble field on Labor Day weekend staring at empty skies.

"There's still plenty of food here in Montana in early September, but doves migrate out anyway," says Jim Hansen, FWP's Central Flyway migratory bird coordinator. Even our balmy September nights can be too chilly for the heat-loving mourners. "They leave because of a combination of decreasing day length and decreasing temperature," Hansen says. "If the temperatures stay warm, especially at night, they'll stick around longer, maybe even until the 10th of September or so. But some time around then is when you start getting nighttime lows into the 40s, and that's when doves start heading south."

Dave Carty of Bozeman is a longtime contributor to Montana Outdoors.

JUST COMING THROUGH

Many birds fly through Montana each fall from northern summering grounds to warmer locales south of us. Count among those snow geese, Canada geese, and other waterfowl, as well as neotropical warblers like the common yellowthroat and American redstart. Among the last of the passers-through are tundra swans, scaup, and mallards pushed south as late as early December when the lakes and even rivers of Canada's Prairie Provinces freeze over.

Birds of prey from Canada and Alaska use Montana's geology like an aerial interstate on their way south. One well-known migrating raptor concentration is just north of Bozeman in the Bridger Range. Viewers have spotted 16 different species during the migration peak in early October, including some of the largest concentrations of golden eagles in North America.

Hoffman says the raptors ride thermals created along the east side of the Rocky Mountain Front south from Alberta. Once in central Montana, they get funneled along the Bridgers. "That range has a single ridgeline instead of multiple ones that would spread out the updrafts," he says.

Assisted by the almost perfect soaring conditions above the Bridgers, many of the golden eagles could conceivably shoot south another 100 to 200 miles by the end of the day, says Hoffman. That pace would put them at their wintering grounds in Texas and northern Mexico in just a few short weeks.

WELCOME TO MONTANA

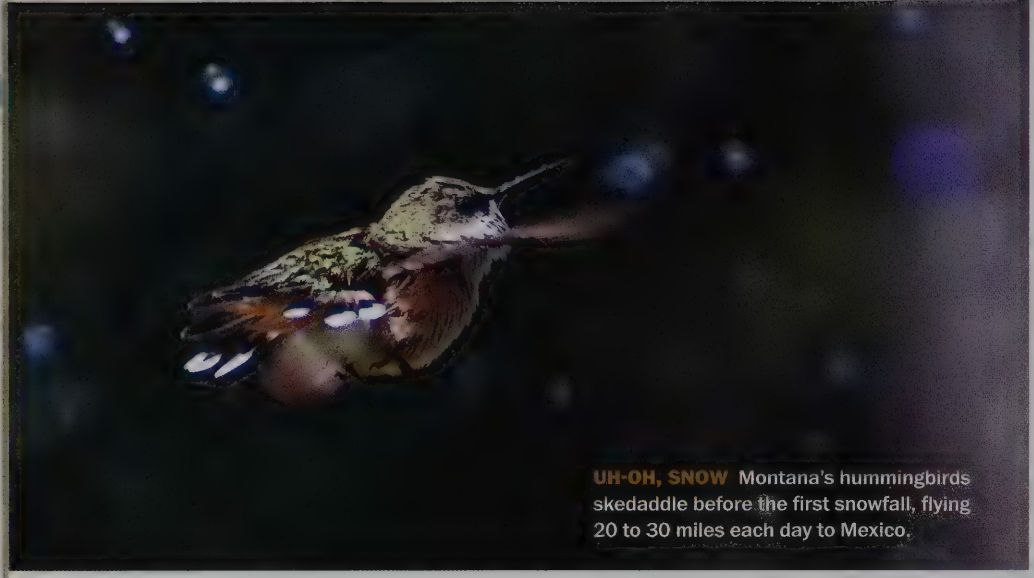
As cold and windy as Montana gets in January and February, some birds actually fly here from even worse weather to spend the winter. Goldeneyes, mallards, and Canada geese from our neighbor to the north are just a few examples. Common redpolls and Bohemian waxwings prefer the Treasure State to the northern Canadian provinces where they breed. Every few years, in what's known as an "irruption," snowy owls from the Arctic migrate to "mild" Montana and other northern states in the Lower 48, likely due to declines in Arctic lemming populations.

Montana's most commonly seen winter arrivals are rough-legged hawks. To these birds, which nest on the face of cliffs overlooking Arctic tundra, our state probably looks like Fort Lauderdale. In the Arctic, they live on lemmings and voles, so switching to mice and voles in Montana isn't much of an adjustment. And true to their nature, when the weather warms just a little, rough-legged hawks are eager to head north again. They begin migrating back to the Arctic as early as March and April.

New studies show that sage-grouse from Alberta and Saskatchewan migrate into Montana from the Hi-Line south to the

CLOCKWISE FROM UPPER LEFT: LINDA KELLY; KEN ARCHER; NELSON KENTER; DONALD M. JONES; JAY L. CROSS

DEPARTURES AND ARRIVALS Clockwise from above left: Though many bald eagles stay around Montana year round, feeding on fish in open rivers, some head to southern states in September to breed in late fall or early winter. Bohemian waxwings summer in the boreal forests of Canada and Alaska then head to Montana to spend the winter. Rough-legged hawks are the most common winter arrival, dropping down each year from Canada to enjoy our "balmy" weather. Snowy owls also show up here some winters when deep snow in the Arctic makes it difficult to find lemmings.



UH-OH, SNOW Montana's hummingbirds skedaddle before the first snowfall, flying 20 to 30 miles each day to Mexico.

Missouri River Breaks. So do pronghorn. Thousands of antelope migrate from southern Canada across northern Montana, some even crossing frozen Fort Peck Reservoir. Like the sage-grouse, the pronghorn are drawn by the relatively easy grazing on windswept and snow-free prairies along the Milk River or Missouri River Breaks. "I used to keep track of herds along the Milk River northwest of Glasgow, and in the hills I'd see groups of from 50 up to several hundred," says FWP wildlife biologist Kelvin Johnson. "We had one herd that eventually got up to about 700 animals."

TINY TRAVELERS

Amazingly, some insects also head south before the snow flies. Most Montana insects overwinter here as eggs, larvae, nymphs, or pupae, or hibernate as adults in tree cavities (like the mourning cloak moth) or barns and attics (such as wasps and ladybugs). But some adult dragonflies and beetles fly south, likely to "hedge their bets" by reproducing in different locales. Recent studies by British scientists show that several moth species fly half a mile or more into the sky to catch fast tailwinds that propel them to warmer locations.

Aside from tiny moths flying 1,500 miles south to Mexico, perhaps the most heroic migration from Montana is that of the calliope hummingbird, the world's smallest migrating bird.

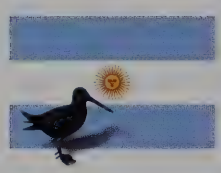
Along with Montana's rufous, broad-tailed, and black-chinned hummingbirds, the caliope summers in the state's central and western regions. Now retired, Ned and Gigi Batchelder of Hamilton spend their free

time banding and studying hummers. "We've caught and banded birds in Montana and then caught them later in Wyoming. When we figured out the mileage, it came out to 20 or 30 miles a day," Ned says. "Migrating hummingbirds don't hitch rides on the backs of geese, which is an old myth that just will not die. But how they do migrate is still pretty fascinating. A lot of people don't even know that they end up in Mexico, and that they may migrate five years in a row during their lives." The Batchelders catch the hummingbirds in a cage trap baited with a feeder. During the migration peak, they capture and band up to 100 birds each day.

NOT ALWAYS SOUTH

Most birds migrating south from Montana end up along the Texas coast or in Mexico or Central or South America. Not all, though. Some snow geese passing through Freezeout Lake spend the winter at Tule Lake near Sacramento, California. Harlequin ducks, which nest in and around Glacier National Park, winter along the Pacific Coast in British Columbia. "Some bald eagles that summer in Montana return to Arizona in September to get ready to breed there in late fall and early winter," says Montana Audubon's Hoffman.

The longest winter migration out of the state is that of the upland sandpiper, which flies more than 6,000 miles to winter in Argentinian pampas (prairies).



The award for shortest winter migration from the state goes to several dozen sage-grouse that nest in southwestern Montana near the Lima Peaks. Each fall the birds fly just 40 to 60 miles south to their relatively snow-free wintering grounds around Mud Lake in southeastern Idaho. "I've observed them flying overhead more than 500 feet in the air," says Craig Fager, FWP wildlife biologist in Dillon. "I looked up and thought, 'What on earth is that?' I've also found them up on the Continental Divide near Monida, and flushed them into Idaho. They can actually set their wings in Montana and coast for miles on that glide."

The sage-grouse raise their chicks in Idaho. When the young birds are big enough to fly, they head to Montana in search of the succulent plants and grasshoppers that evidently are more plentiful—and maybe also tastier—than the plants and 'hoppers just a few miles south in Idaho.

That's the thing about migration. Whether it's just across the border into another state or across the globe to another hemisphere, migrators are looking elsewhere for something they can't find where they happen to be. Many fly, walk, or glide to locales they may have never seen before and from which they may not return. But their offspring will, and their offspring's offspring, in an unending cycle of coming and going that countless numbers of their kind have followed for eons.

In 1930 Montana's schoolchildren voted for the western meadowlark as the bird that best represented the state. The following year, the Montana Legislature made it official. Then in 1998 several lawmakers proposed to replace the meadowlark with the magpie. The legislators argued—unsuccessfully—that the songbird flees to Mexico each fall when temperatures begin to drop, while the magpie stays in Montana year round and is more deserving of the state bird honor.

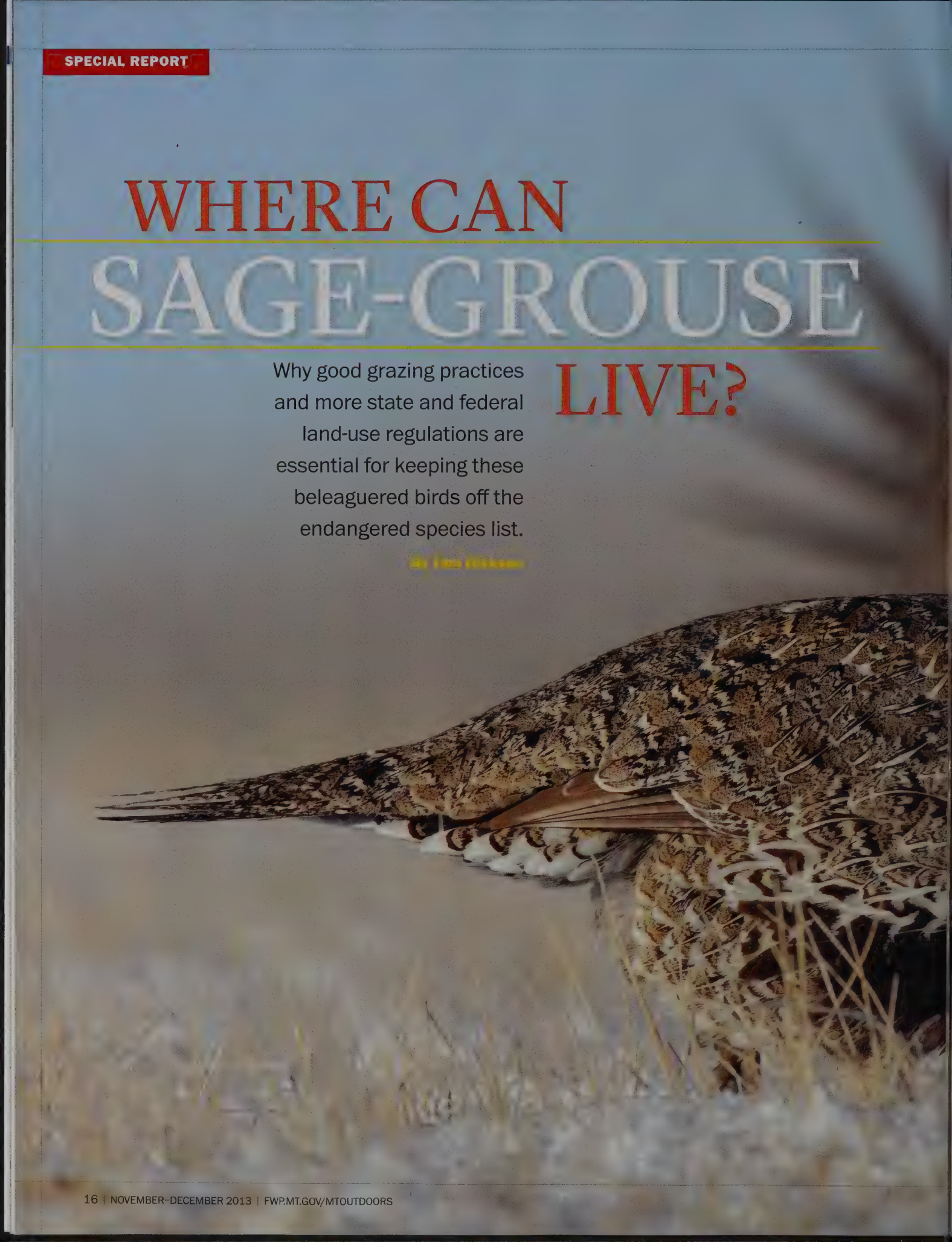
LEFT TO RIGHT: RICK SHREMETA; DOUGLAS ROANE

As cold and windy as Montana gets in January and February, some birds actually fly here to spend the winter. Goldeneyes, mallards, and Canada geese from our neighbor to the north are just a few examples.

PUZZLING PASSAGE Canada geese, mallards, and goldeneyes are mysterious migrators. Some resident birds fly south for the winter, while others stay year round. Birds from Canada may fly though Montana on their way farther south, or hang around here all winter. No one is entirely sure why some waterfowl remain here during the cold months while some depart.

WHERE CAN SAGE-GROUSE LIVE?

Why good grazing practices and more state and federal land-use regulations are essential for keeping these beleaguered birds off the endangered species list.



GREATER SAGE-GROUSE PHOTO BY GERRIT VYN

On a gravel county road 40 miles northeast of Roundup, a sea of rolling sagebrush "steppe," or grasslands, extends to the horizon in every direction. This vast landscape I am driving through is a stronghold of Montana's sage-grouse population, the nation's second largest.

Lorelle Berkeley, a Montana Fish, Wildlife & Parks research biologist heading a long-term study on sage-grouse, leads me into a tract of sagebrush she says is ideal nesting habitat for the large grasslands bird. The silvery-green sagebrush plants here are densely scattered across miles of shortgrass prairie. They create what biologists sometimes call a prairie "forest," the 3-foot sagebrush acting as trees.

Bunchgrass and needlegrass, now dry and dormant as fall approaches, stand calf high. Growing beneath the sagebrush are wild dandelion, desert parsley, phlox, vetch, yarrow, and other native forbs (broad-leafed flowering plants) that grouse chicks eat. Even more essential to the young birds, says Berkeley, are beetles and other insects. They crawl underfoot in mulch-like dead plant litter that is still moist from rain that fell six days earlier.

If more of the West still contained habitat like this, few people would be arguing over sage-grouse.

Unfortunately, too many sagebrush grasslands like the ones Berkeley shows me are fast disappearing in many western states and even parts of Montana. Now disparate interests—ranchers, oil companies, state and federal agencies, and conservation groups—are trying to reverse that trend. They aim to conserve the best remaining sage-grouse habitat and convince the federal government not to list the species as threatened or endangered—a very real possibility that could happen in less than two years.

LUMPED IN WITH REST

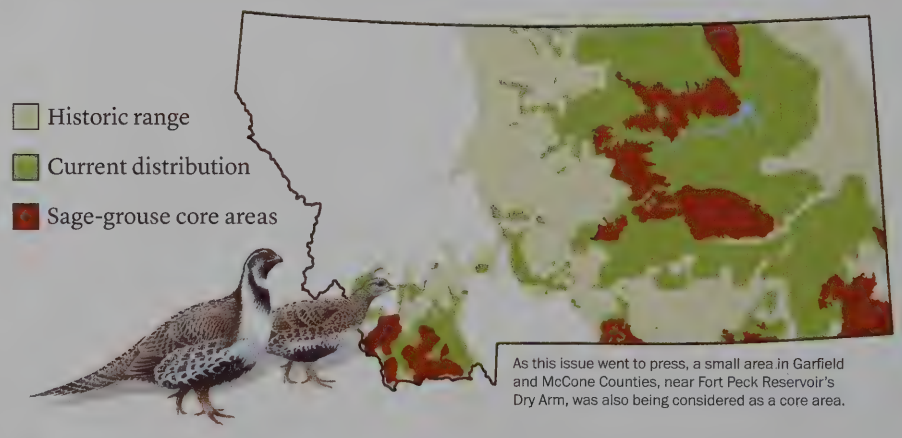
Sage-grouse populations have been declining throughout the West for decades. The species occupies just 56 percent of its historic range, and numbers are down 50 to 65 percent from as recently as the early 1970s to a rangewide total of just 200,000 breeding birds today. Before European settlement, sage-grouse across the West may have numbered in the millions.

Thanks to abundant habitat, in many cases kept healthy by well-managed cattle grazing, Montana populations are healthy. The state has long been a national leader in the bird's conservation. In the mid-2000s, FWP inventoried and mapped sage-grouse "core areas," or critical habitats. "This allows us to zero in on the places with lots of remaining birds and intact sagebrush, so we optimize our conservation efforts," says Catherine Wightman, the department's sage-grouse coordinator. Since 2006, FWP has made one-time payments to private landowners who agree not to spray, plow, or burn sagebrush grasslands for 30 years. That has protected a total of nearly 200,000 acres. The state also conserves sagebrush through the hunter-funded Habitat Montana Program, which purchases permanent conservation easements on private land.

"This is bigger than just this one bird," says Ken McDonald, head of the FWP Wildlife Division. "The sage-grouse is considered an 'umbrella' species, because it requires such large areas to survive. If we conserve sage-grouse across Montana, we also help pronghorn, mule deer, songbirds, and many other sagebrush-steppe species."

Wyoming has similarly mapped and conserved sage-grouse, and today the two states combined contain 55 percent of the West's sage-grouse. Yet when considering a species for listing, the U.S. Fish & Wildlife Service (USFWS) lumps all western states together. Even with the bird's strong showing in Montana and Wyoming, habitat loss elsewhere has been so pronounced that in 2010 the USFWS determined that the sage-grouse "warranted" federal protection. The bird was "precluded" from being listed as threatened

▸ Sage-grouse current and historic distribution


Historic range
Current distribution
Sage-grouse core areas
As this issue went to press, a small area in Garfield and McCone Counties, near Fort Peck Reservoir's Dry Arm, was also being considered as a core area.

BEST BANG FOR THE BUCK In the early 2000s, FWP inventoried sage-grouse distribution across Montana and identified "core areas," or areas of critical habitat. The department is focusing conservation efforts on these lands to get the most mileage out of limited resources.

LUKE DURAN/*MONTANA OUTDOORS*. SOURCE: FWP

or endangered only by the fact that other species were even worse off.

Frustrated by federal inaction, environmental groups sued. A federal judge ruled that the USFWS must reevaluate the status of sage-grouse and other "warranted but precluded" species by fall 2015.

The federal agency has since warned states and other federal agencies that its primary concerns are threefold: (1) sagebrush grassland habitat loss and "fragmentation" (caused by new roads, traffic, construction, and power lines that scare off the skittish birds); (2) new conversion of sagebrush to crops (or, in more urban states like Colorado, subdivisions); and (3) the lack of land-use regulations to safeguard the bird's habitat in the future.

Attending to these three threats, says the USFWS, will greatly reduce the likelihood that the sage-grouse will be listed.

Few people want to see that happen. Grazing and energy development could be restricted on BLM and other federal lands. States would lose management authority, including the ability to allow hunting. Even the species itself could suffer.

"Sage-grouse need large tracts of land, and in Montana ownership is a checkerboard of public and private holdings," says McDonald. "That requires conservation measures by all parties, and unfortunately cooperation evaporates when a species is listed. That's why—and this may be counterintuitive to a lot of people—we believe the sage-grouse might have a better chance of long-term survival by staying off the list than being on it."

TOM DICKSON/MONTANA OUTDOORS

IN THE THICK OF IT "What these birds need is what you see here: good sagebrush density, diverse native grasses and forbs, and a decent amount of tall dead grass in spring for nesting cover," says Lorelle Berkeley, who heads an FWP study on grazing and sage-grouse survival in the Roundup area.

HELP AND REQUIRE

There are two ways to convince people to conserve sage-grouse habitat: (1) help them do it voluntarily, or (2) require them.

The Sage-Grouse Initiative (SGI) was created by the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) in 2010 in large part to help ranchers graze their cows in ways that benefit sagebrush grasslands. Because nearly 40 percent of the nation's 186 million acres of sage-grouse habitat is on private property where ranchers often run cattle, the timing and intensity of grazing affects the big birds' survival.

Among the dozens of partners participating in the initiative are such unlikely bedfellows as ConocoPhillips, the National Cattlemen's Beef Association, National Audubon Society, Rocky Mountain Elk Foundation, and World Wildlife Fund. "Never before has there been such a marshalling of diverse and influential forces to help an at-risk species," says Tim Griffiths, national Sage-Grouse Initiative coordinator in Bozeman. So far the program has spent $145 million to protect sage-grouse habitat on private and public land, with partners contributing another $70 million.

> "We've found that hens are choosing areas with more residual cover height, so there seems to be a connection between well-managed grazing and nesting."

Funded by the federal farm bill, the SGI shares the cost with landowners to remove encroaching conifers (mainly in Utah and Nevada) that take over sagebrush grasslands, and it buys conservation easements—one-time payments to willing landowners who agree never to plow, burn, or otherwise damage their sagebrush grasslands. The SGI also funds the lion's share of new fencing and water sources needed by participating ranchers to graze more sustainably. "Many ranchers want to implement better grazing systems, but they don't have the upfront capital to pay for the infrastructure that's required to move cows around more," says Griffiths.

That was the case with Ricky and Stephanie Downs, who own an 11,000-acre ranch north of Roundup where they run several hundred head of cattle. As part of their ten-year SGI contract, they agreed not to harm sagebrush grasslands and to adjust their grazing process to bolster native plant

Tom Dickson is editor of Montana Outdoors.

SAGE STEWARDS Roundup-area ranchers Ricky and Stephanie Downs, shown here with their grandson Levi, are using Sage-Grouse Initiative funding to move water and install fences so they can rotate grazing cattle. The result? Healthier sage-grouse habitat and more cattle forage. "We get a lot of satisfaction seeing happy cows and knowing we are doing the right thing for our land so hopefully we can pass this place on to our children and grandchildren," says Ricky.

LEFT TO RIGHT: JOHN WARNER; CHUCKANGALEROBBINS.COM

growth. In return, they received financial help to buy fencing as well as pipelines for filling additional stock tanks.

The Downses can now move their three herds among 26 separate pastures so that the cattle never stay in one place long enough to overgraze grasses and forbs. "It's definitely working," says Stephanie. "We monitor the grass and grazing systems with the local NRCS staff in Roundup—who have been just great to work with—and we can see how each year the grass is taller and more robust."

Keeping ranches financially viable is a large part of the SGI strategy, says David Naugle, a wildlife professor at the University of Montana and science adviser for the SGI. "The problem for sage-grouse in eastern Montana isn't cattle," says Naugle. "It's ranchers giving up on cattle because it's no longer profitable, and then selling or converting their land to things that have almost no value to sage-grouse. If these ranches are not profitable, they will be sold and most likely developed."

GROUSE AND GRAZING

What's best for both sage-grouse and cattle productivity might be called "just right" grazing: not too little and not too much. That's mainly what's being done under the SGI contracts. Depending on vegetation composition, soil types, and the number of livestock, cows are regularly moved from pasture to pasture in a "rest-rotation" regime that restricts them from some areas for as long as a year and a half.

How well that grazing helps sage-grouse is what FWP's Berkeley and her crew are studying on 153,000 acres of land in Golden Valley and Musselshell Counties. "This project started when the SGI was just getting off the ground," the FWP biologist says. "Lots of money was going out to

▸ What about hawks and hunters?

"People are asking about that," says Ken McDonald, head of the FWP Wildlife Division. "We understand why Montanans want to know why, if the states and feds are so concerned about sage-grouse, they aren't pushing to end hunting and remove predators."

The short answer, says McDonald, is that the U.S. Fish & Wildlife Service identified habitat loss and lack of environmental regulations—not hunting and predation—as the major threats to sage-grouse. "If all we do is talk about hunting and predators, the service will see we are not taking its concerns seriously. We have no choice but to attend to the major threats they've identified," he says.

LOW IMPACT Hunters harvest just a small fraction of sage-grouse.

Studies in Montana and elsewhere have shown that hunting takes just a small fraction of the total sage-grouse population. "And by allowing hunting, Montana can use upland hunting license dollars for sage-grouse monitoring and habitat conservation. Otherwise we couldn't do that, and we'd also likely lose lots of sportsman support," McDonald says.

As for predators, there's no question that raptors, coyotes, foxes, and snakes take a toll on sage-grouse. "In a few places they definitely may suppress populations," McDonald says. "But as a statewide strategy, we need to focus on habitat so that sage-grouse can withstand predation, as they have for thousands of years." ■

ranchers, but there was no objective science showing how well the work was helping sage-grouse and habitat."

Berkeley's study, funded in part by the SGI, examines how vegetation responds to various rotational grazing systems during different seasons. It also tracks sage-grouse survival. During the past three years, crew members captured roughly 250 adult hens and 150 chicks and fitted them with tiny radio transmitters. The scientists follow the birds to see which habitats they choose, and then track nesting success and hen and chick survival rates to see how the grouse fare in different grazed areas.

"Already we're seeing taller grass and better ground cover in grazed areas that have had more rest," Berkeley says. "And we've found that hens are choosing areas with more residual cover height, so there seems to be a connection between well-managed grazing and nesting. But we have several more years of study before we can draw conclusions."

TWO-PRONGED APPROACH

If the SGI is the "help them" way of convincing people to voluntarily benefit sage-grouse, soon-to-be released state and federal plans will add the "require them" prong.

One of the USFWS's main concerns is the lack of regulatory "mechanisms"—laws, regulations, and policies—by states and federal agencies to reduce fragmentation and other threats to sage-grouse habitat. States especially are seen as lacking adequate oversight on energy development to keep grouse numbers from dwindling further. "This is hugely important," says McDonald. "The regulatory component is what will really move the needle on sage-grouse conservation. It has the potential to conserve millions of acres of habitat."

> "The regulatory component is what will really move the needle on sage-grouse conservation."

Earlier this year, Montana Governor Steve Bullock directed FWP to lead a citizens' work group to develop a plan to help prevent the sage-grouse from being listed. The 12-person group represents agriculture, ranching, conservation, hunting, energy, mining, Indian tribes, local governments, and the Montana Legislature. By the end of 2013 it will recommend to the governor new policies and actions that address the main threats identified by the USFWS. Draft recommendations are now out for public review and comment (see note at the end of the article). "The biggest challenge facing the council is how to allow oil and gas development while still retaining the big open spaces that sage-grouse need," says Tim Baker, the governor's

LAST CHANCE? With a September 2015 deadline fast approaching, conservationists, landowners, energy developers, and others are working to convince the U.S. Fish & Wildlife Service that the sage-grouse is not imperiled.

LEFT TO RIGHT: DON MACCARTER; CHRIS BOYER/KESTRAL AERIAL; JEREMY ROBERTS/CONSERVATION MEDIA; TOM DICKSON/*MONTANA OUTDOORS*

What the future may hold

Three possible scenarios for sage-grouse down the road:

1 One is where sagebrush is plowed up and converted to wheat or corn, whose prices have risen sharply in recent years. In these worst-case scenarios—now increasing across Montana—the bird won't survive.

2 The second is where oil and gas development takes place in sage-grouse habitat. If regulations can reduce habitat damage caused by new roads and other disturbances, sage-grouse may hang on.

3 The third is where sagebrush prairies remain intact and well-managed cattle grazing invigorates native vegetation. Here sage-grouse can not only survive but actually thrive.

natural resources policy advisor.

Under the new strategy, Governor Bullock could direct state agencies not to issue permits unless certain conditions are met by energy developers. Requirements might include keeping well pads and roads a certain distance from sage-grouse mating areas, restricting activities during critical times of year, such as mating season, and reducing total surface disturbance in critical habitat.

That's Wyoming's approach. Using a computer program developed at the University of Wyoming and available to the public online, energy developers can see, before applying for a permit, how their project will disturb sage-grouse. If the total area of proposed and existing disturbance exceeds the state's threshold of 5 percent of the total project area, Wyoming will not issue a permit.

Industry officials in Montana have told Baker they like how the Wyoming model allows them to see potential problems in advance. "They like the certainty and the predictability," he says.

PLANS NEED TO MESH

The other major regulatory component to sage-grouse conservation are the Bureau of Land Management's resource management plans, now under revision. The plans guide grazing, energy development, and other activities on BLM holdings, which in Montana comprise 30 percent of sage-grouse range.

John Carlson, BLM conservation biologist in Billings, says his agency is waiting to see Montana's final strategy so it can adjust its plans. "For all this to work across Montana—where state, federal, and private landownership is mixed together—the state's strategy will need to mesh with our plans, and all of them must adequately address the threats identified by the USFWS," he says.

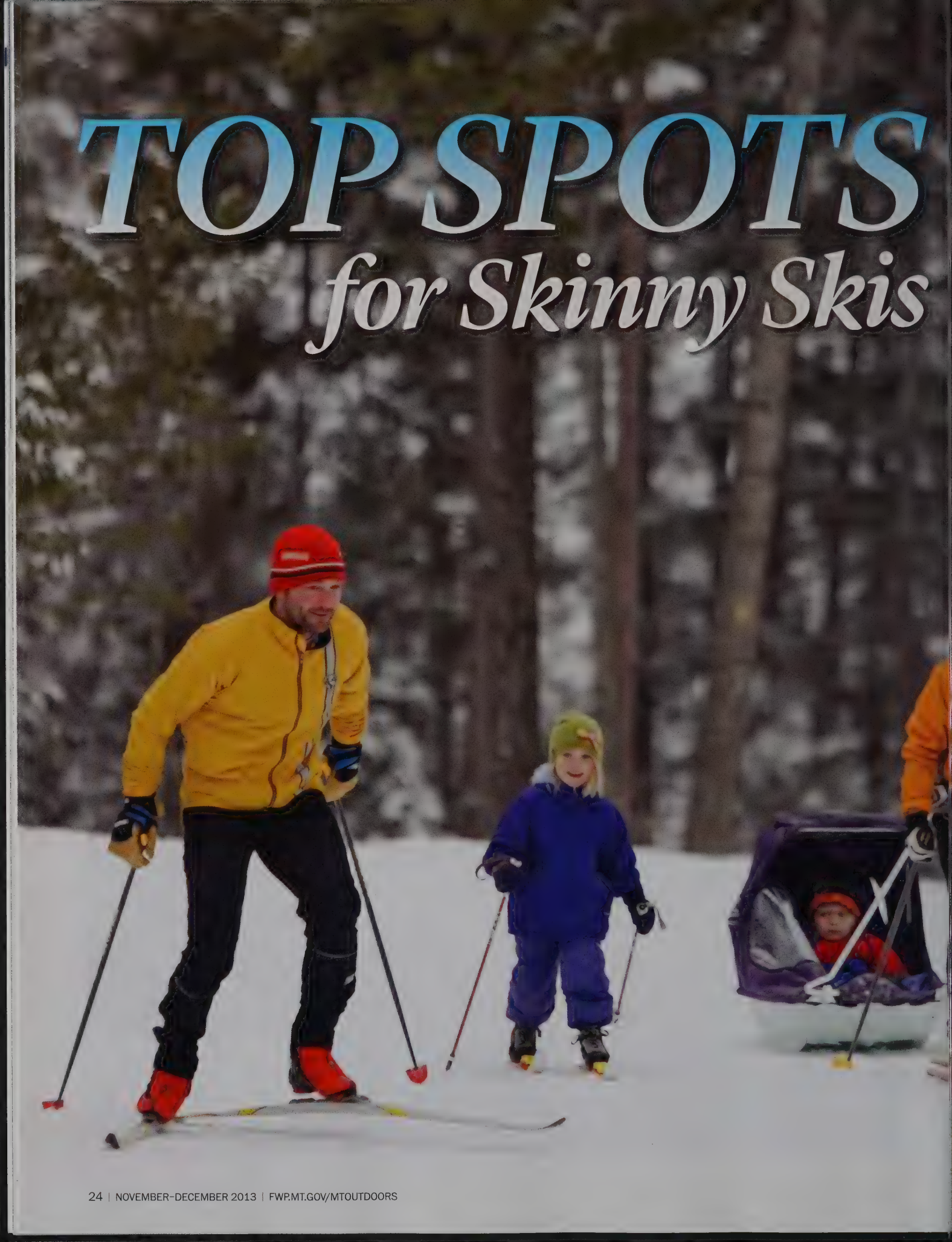
As Berkeley and I drive back to Roundup, concerns such as sagebrush conversion and fragmentation seem distant and theoretical. Meadowlarks sing, and a mule deer trots off in the distance. Then six sage-grouse, likely startled by the vehicle, flush from a clump of sage. The big birds soar across the road 50 yards in front of us, their white underwings flashing in the morning sunlight. "Wow. Would you look at that," says Berkeley. "I never get tired of seeing them."

Minutes later we drive over a rise and see a new field of wheat carved out from the sea of sage. It's a reminder of how market forces—wheat prices have doubled since 2006—continue to chip away at the places where the grasslands bird lives. It's also a major reason why the federal government has reserved a place for the sage-grouse on its list of threatened and endangered species.

Will the sage-grouse join the ranks of the federally protected black-footed ferret and grizzly bear? That depends largely on whether conservationists, developers, landowners, and others can agree on a region-wide plan that maintains enough of the big and intact habitat the species needs to survive.

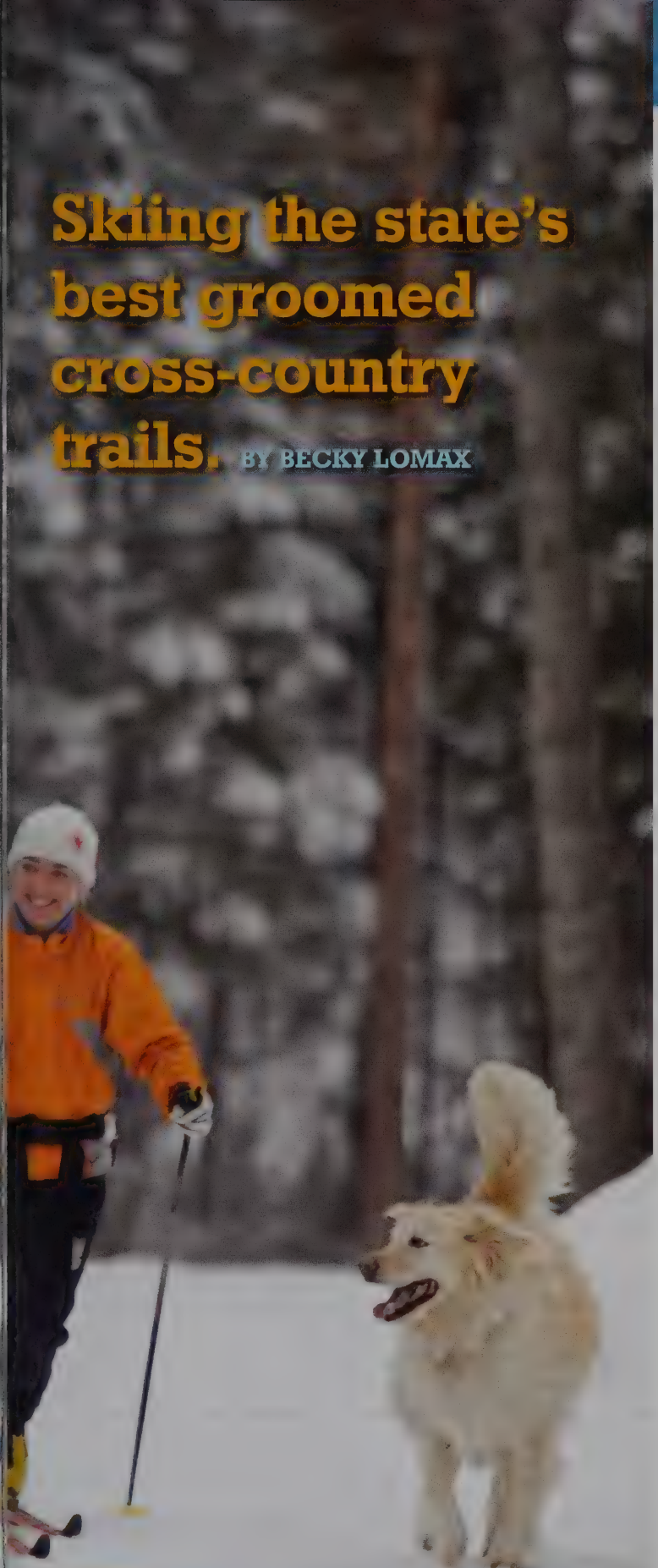
View and comment on the advisory council's recommendations through November 2013 by visiting the FWP website (fwp.mt.gov) and searching for "Sage-Grouse Conservation Advisory Council."

TOP SPOTS
for Skinny Skis



Skiing the state's best groomed cross-country trails.

BY BECKY LOMAX



FIT FAMILY Cross-country (Nordic) skiing is a fun and healthy way for kids and parents (and dogs) to spend time together outdoors in winter. Groomed trails make both classic and skate skiing easier.

CHUCK HANEY

Cross-country skiing burns an average of 650 calories per hour—far more than downhill skiing, walking, or cycling. After an afternoon on skinny skis, you can eat a big, gooey caramel roll the next morning guilt free. Heck, have seconds.

That great cardio workout, along with the appeal of gliding across snow through silent, snowy forests, is luring more and more people into cross-country (also known as Nordic) skiing each year. Two decades ago, my fellow Nordic skiers and I could find only a few sites containing groomed trails; today we have more than a dozen to choose from.

Responding to Nordic skiing's growing popularity, many western Montana resorts, businesses, and communities have built or added trails, often "groomed" daily with special equipment that packs and tracks new snow and renovates old snow to create the best possible cross-country skiing conditions.

Most ski centers cater to both styles of Nordic skiing: traditional (also known as classic or diagonal stride) and skate skiing. You can enjoy traditional cross-country skiing in a pasture, on a U.S. Forest Service road or backcountry trail, or on a groomed two-lane track. These skis have a sticky "kick" zone on the underside of the mid-section and "glide" areas in the front and back. The kick zone gets its traction from either a fish-scale pattern carved into the ski bottom or special waxes rubbed in to create friction against the snow. Skiers push down on the ski with the ball of their foot to propel them forward into a glide.

Skate (or freestyle) skiing was first developed in the late 1970s by Europeans and caught on in the United States after Bill Koch used the technique to medal in the 1982 Nordic World Ski Championship. Skate skis, about two-thirds the length of traditional Nordic skis, have no grip. The skier propels forward by digging the sharp inside edge of each ski into the snow and pushing off like a speed skater, rocking side to side from one ski to the other, creating a V pattern in the snow. This technique also makes use of extra-long, lightweight poles for additional propulsion. Skate skiers can traverse frozen lakes and open areas of packed snow, but they generally need wide, groomed trails where the snow has been packed down and then raked to create a corduroy texture that provides some traction.

When you visit a Nordic ski center and see a trail of parallel grooves in the snow, that's for traditional skiers. The adjacent 8-foot-wide flat swath is for skaters, who are often clad in bright, tight-fitting spandex racing suits (even if they've never raced a day in their life, because it just feels good to exercise in skin-tight outfits).

Anyone of any age can learn either type of skiing, though the traditional style is easier and takes less balance and leg muscle. Athletes gravitate toward skate skiing and its massive cardio workout, while many families stick to the classic style.

"Raising our kids on the ski course helped them develop balance skills, strength, and an overall love of sliding on snow," says Whitefish-area Stillwater Nordic Center co-owner Kirsten Sabin, whose youngest started at just one and a half years old. "Plus, skiing provides another outdoor activity for all of us to do together in winter."

Just starting out? Consider taking a lesson or two. There's a trick to cross-country skiing that few can figure out without at least some assistance. "It's true that anyone who can walk can cross-country ski," says Theresa Leland, program director at Bohart Ranch Nordic ski area near Bozeman. "But it's much more enjoyable to develop good technique so you can take it to another level. By learning to increase your glide, you can travel farther and faster with less effort."

Lessons, offered at many Montana ski centers, can also reduce frustration, flailing, and falling. "We teach you easy ways to maintain your balance so you can spend more time gliding across the snow and less falling onto the snow," Leland says.

The Nordic ski areas listed here are the larger ones in Montana (with at least 15 kilometers of groomed trails). They offer a wide range of fun trails for all abilities, are open daily December through March, and groom for both traditional and skate skiing. Fees range from $5 to $20 per day, and rental gear, where offered, costs $10 to $30 per day.

A few of these areas allow dogs, but only on certain loops. Poop pickup is mandatory.

Stillwater Nordic Center

Eight miles northwest of Whitefish in the Stillwater State Forest, the Stillwater Nordic Center was launched in 2006. The owners groom skating lanes daily and "reset" (repack) classic tracks as needed. Beginners and families can chug up broad Murray Mile Boulevard and cut across on Interlachen to reach Murray Lake for a giant loop around the frozen lake and its scattering of ice anglers. More daring skiers looking for steep climbs and drops can tackle Hellroaring Highway, added several years ago, which upped the center's total trail length to 20 kilometers. The warming hut at the trailhead offers free rentals and skiing for kids younger than 12, and two free sleds are available for anyone who wants to pull youngsters too small to ski. "We want to make it easy to come out and ski here, and we realize how short parents are on time," says co-owner Kirsten Sabin. A lodge for overnight stays is available at the trailhead. Several trails are dog friendly.

http://stillwatermtnlodge.com
(888) 205-7786 • (406) 862-7004

Writer Becky Lomax of Whitefish is a longtime contributor to Montana Outdoors.

Additional resources

- Jean Arthur's *Montana Winter Trails* (Globe Pequot Press, 2001). This book describes a variety of trails, from those tracked in fresh snow by fellow skiers on golf courses to professionally groomed routes at the state's big Nordic centers.
- Winter Montana, the official state website for winter sports, contains some information on Nordic ski areas.
  wintermt.com/Cross-Country_Skiing

Izaak Walton Inn

Perched at the southern tip of Glacier National Park, Izaak Walton Inn's 33 kilometers of trails wind through the hemlock, spruce, and fir of Flathead National Forest. Most of the trails, which are groomed regularly, run along Essex and Dickey Creeks. The 1-kilometer Starlight Loop is lit up each evening for night skiing. Easier trails follow wide, gentle summer roads, while more difficult routes offer climbs, turns, and fast roller-coaster drops. Much of the area's unique ambiance comes from the whistles of trains passing on the tracks that bisect the property and run next to the historic inn, listed on the National Register of Historic Places. Izaak Walton offers rentals, lessons, ski tours in the national park, and dining, as well as lodging in the historic railroad inn, new cabins, or even a few cozy railroad cars.

izaakwaltoninn.com
(406) 888-5700

Seeley Creek

Sitting on Cottonwood Lakes Road 1 mile from downtown Seeley Lake, Seeley Creek Nordic Trails consists of 18 kilometers of both skate and classic routes. The Seeley Lake Nordic Ski Club, under a special management agreement with Lolo National Forest, is responsible for regularly grooming the trails. The routes loop through the national forest at the southern tip of the Swan Mountains, rolling between larch and fir stands and open logged zones. No user fees are charged, though visitors are urged to make a donation of a few dollars in the "metal ranger" at the trailhead to help cover grooming costs.

The backcountry Montour Cabin can be rented from Lolo National Forest. Skiers can also access 100-plus miles of forest roads for skijoring (where the skier is pulled by a dog).

Two major races are held in the scenic area each year: the Seeley Lake Challenge Biathlon and the legendary OSCR (Over Seeley's Creeks and Ridges) 50k race.

seeleylakenordic.org

Mount Haggin

On Mount Haggin Wildlife Management Area near Anaconda, the Mile High Nordic Ski Education Foundation maintains more than 20 kilometers of trails, as well as a warming hut on Mill Creek Road. Half the trail distance consists of routes groomed for skate and classic, while the other half is a single trail groomed solely for classic skiing. That route offers views of the Pintler Range and a twisting downhill section known as Death Dip. It's definitely not for beginners. The ungroomed Spire Loop contains tracks "set," or produced, by skiers after a snowfall.

"We have a super-dedicated staff of volunteers who groom the trails to commercial standards," says Dave Williams, president of the foundation. "Grooming usually happens Thursdays or Fridays in preparation for the weekend, but we may touch up the trails whenever we get new snowfall." The nonprofit organization relies on club fees and donations at the trailhead to buy gas and maintain the vehicles. The trails, which run through historic logging camps, are operated in coordination with Montana Fish, Wildlife & Parks.

milehighnordic.org

LEARNING CIRCLE At Bohart Ranch near Bozeman, instructors show kids the basics of Nordic skiing. Both traditional and skate skiing are growing more popular across western Montana.

ERIK PETERSEN

Homestake Lodge

Three miles south of Homestake Pass on I-90 between Butte and Whitehall, Homestake Lodge is Montana's newest cross-country ski center. It was launched by Chris Axelson, former director of the New England Nordic Ski Association and a previous member of the U.S. Ski Team. The lodge's Nordic trails weave through 37 kilometers of riparian meadows, aspen groves, and mixed forest dotted by massive granite boulders that Axelson and his wife and lodge co-owner, Mandy, have dubbed with names like Double Bubble.

"Most of our trails are generally rolling and over nice flat terrain in the bottom of drainages, with long climbs taking only several minutes," Chris says. Many of the trails are groomed as needed by a large double-track groomer, while narrower trails require more intricate maneuvering by a smaller groomer pulled by a snowmobile. "We have those trails for a more remote and intimate feeling," adds Axelson. Twice each week, 2 kilometers of trail are lit for night skiing. Lessons, rentals, weekend and holiday lunches, and overnight accommodations are available. Twelve kilometers of trail are open to skiers with dogs.

homestakelodge.com • (406) 585-8052

Rendezvous Ski Trails

On the edge of Yellowstone National Park in West Yellowstone, Rendezvous Ski Trails provides 35 kilometers of paths groomed for skate and classic skiing through broad meadows and lodgepole pines. Visitors accustomed to skiing lowlands will definitely feel the area's 6,800-foot elevation. The Gallatin National Forest, West Yellowstone Chamber of Commerce, and West Yellowstone Ski Education Foundation cooperate in managing the trails. Doug Edgerton, owner of a company that makes ski-grooming equipment and head of Nordic course preparation for the 2002 winter Olympics, oversees grooming.

Because it's so high, Rendezvous Trails enjoys a lengthy season, beginning with the Yellowstone Ski Festival in late November and ending with a 50k ski marathon in March. Lessons and rentals are available from Freeheel and Wheel, a funky coffee-ski-cycling shop in town, and the trailhead is within walking distance of lodging and restaurants.

rendezvousskitrails.com • (406) 599-4465
freeheelandwheel.com • (406) 646-7744

Bohart Ranch

Tucked 17 miles up Bridger Canyon north of Bozeman, Bohart Ranch is in the ski education business. In addition to offering daily lessons open to anyone, Bohart runs a program that each year teaches 1,600 Montana school kids how to ski and appreciate the winter environment. The ranch features 25 kilometers of interconnected, well-signed, daily-groomed loops, and a picnic shelter with a wood stove. The trails run though open meadows, with views of the Bridger Mountains, and deep forests. Kids particularly enjoy the I Spy Trail, which hides 30 treasures such as trolls, ornaments, and even a toothbrush in the trees at eye level. Looking for the treasures creates a good body posture for skiing, with the head up rather than tilted down to look at the skis, a common error. Rentals are available.

bohartranchxcski.com • (406) 586-9070

Lone Mountain Ranch

On Lone Mountain Ranch Road in Big Sky, Lone Mountain Ranch grooms the biggest Nordic center in Montana. The 90 kilometers of nightly groomed trails roll across a golf course and ascend broad, open meadows and forests. Difficult trails climb steeper pitches with sweeping descents. Some trails lead to viewpoints of 11,166-foot Lone Peak, while others take skiers along trails where they might see deer, elk, or moose. A yurt in the middle of the trail system provides a spot for lunch and ski re-waxing. The ranch hosts a week-long Nordic ski festival every March, with clinics, races, and family events. Rentals, lessons, dining, lodging, and ski tours in neighboring Yellowstone National Park are available. A 13-kilometer route is open for skiers with dogs.

(800) 514-4644 • (406) 995-4644
lonemountainranch.com

Red Lodge Nordic Center

Just 1 mile west of Red Lodge, Red Lodge Nordic Center is the closest groomed area for Billings-area skiers. The center, operated by Beartooth Recreational Trails Association since 2002, features 15 kilometers looping through open fields and aspen groves on the Aspen Ridge Equestrian Ranch. Some trails offer views of Beartooth Mountain. Classic skiers can set their own tracks on several short, ungroomed trails. Sometimes the gale-force winds and yo-yoing temperatures common to this area pose a challenge to skiers, especially those using wax, but grooming reports are filed online several days a week to inform visitors of trail conditions. Volunteers groom the trails using donations and trail fees to pay for gas, oil, and maintenance.

The ski center offers senior and family perks: Adults 65 and older and kids 12 years and younger ski free. Ski rentals are available at Sylvan Peak (406-446-1770) in Red Lodge.

beartoothtrails.org/nordic-center
(406) 425-1070 • (406) 425-0698

ARE MISSOULA'S ELK TOO TAME?

PAUL QUENEAU

SETTLED IN Elk congregate near a subdivision in the North Hills just outside Missoula. Many of the 450 elk now wintering here opt to stay year round rather than make the traditional summer migration to the higher-elevation Rattlesnake Area.

A recent study is helping FWP find ways to manage an exploding population in the city's northern suburbs. BY MIKE THOMPSON

One of the many responsibilities of Montana Fish, Wildlife & Parks is keeping the "wild" in wildlife. The tamer game animals become, the more likely they are to threaten human safety and property and lose the characteristics that make them part of the natural environment. Nowhere is this more challenging than in places where elk and deer become habituated to Montana's growing number of new semirural subdevelopments on the "wildland-urban interface"—the open spaces on the outskirts of urban areas abutting wild, forested country.

One of the most pressing cases is in the North Hills north of Missoula. A recent study shows that local elk there are becoming increasingly comfortable sharing their living quarters with people.

There were only 40 elk in that herd in the early 1980s, when University of Montana (UM) graduate student Darrel Weybright roamed the North Hills. As part of his research project, he fitted 11 of the animals with radio collars. The elk wintered on cattle ranches at a time when the hundreds of suburban homes there today were foretold only by a single subdivision of 36 houses and numerous other lots drawn out on paper. Along with the increased and dispersed houses springing up over the past three decades, the elk herd has since mushroomed to roughly 450.

In the mid-1990s, FWP biologists predicted that as elk numbers grew, more elk would learn that they could avoid hunters and competition from other elk by skipping the traditional spring migration to the high country in the Rattlesnake National Recreation Area & Wilderness, about 10 miles to the northeast. The North Hills had long been excellent winter range. As houses and irrigated ranching increased, the area began offering green lawns and lush fields that fattened the few elk that opted to remain year round. What's more, those elk felt mighty secure. The same hunter who might pack miles into the backcountry to hunt an elk would never fire a shot at that same animal near a housing development, where hunting becomes a challenge because of safety concerns.

Would the few ever become the whole herd? Might the high parks of the Rattlesnake Wilderness fall silent in the rutting season as the historic seasonal migration of those elk disappeared?

FWP wildlife biologists were concerned that too many elk might learn that humans are not worth worrying about when near houses and roads. When some elk learn to ignore humans in open grasslands dotted with houses, biologists call those animals "habituated." When the whole herd habituates, biologists call that trouble.

One problem was that the growing elk herd was feeding on haystacks and standing crops as well as trampling fences on local ranches. Another was that the elk could eventually pose a danger to subdivision residents. "The last thing we want is rutting elk running down neighborhood streets," says Vicki Edwards, FWP wildlife biologist in Missoula. What's more, the disappearance of migration behavior would mean not only the loss of historic wildlife movement but also the loss of hunting opportunities in the Rattlesnake Wilderness. And because public hunting—the main method biologists use to control burgeoning wildlife populations—is becoming increasingly difficult in the North Hills due to growing numbers of homes, FWP biologists were concerned the elk population there would explode even further and become unmanageable.

In 2007 FWP called on UM graduate student Shawn Cleveland to reopen the question of elk habituation in the North Hills. With financial and labor support from FWP, UM, Rocky Mountain Elk Foundation, Safari Club International, and Hellgate Hunters & Anglers, Cleveland radio-collared 21 elk. Over the next two years, they led him across the same 150,000 acres, including the crown of the Rattlesnake Wilderness, that Weybright had traversed while following his elk a quarter century earlier.

What Cleveland found was that the migratory tradition of the North Hills elk herd had remained at least partially intact. Some elk were still moving to higher elevations in spring, though a smaller percentage than in years past. More of the herd were staying year round within sight of houses and roads.

The second component of Cleveland's study was to measure the factors that make North Hills elk less—or more—likely to stay near human habitation. Years ago, FWP biologist Terry Lonner, now retired, came up with a memorable, if imprecise, way to categorize the wildness of elk. He described elk that hide from people and run from hunters as "wild-wild"—the way elk should be. At the other end of the spectrum are "defiled-wild" elk, like those that live on golf courses, such as around Canada's Banff National Park, or are fed hay on feed grounds, like the animals in Jackson Hole, Wyoming. "Mild-wild" elk, under Lonner's handy descriptions, are somewhere in between.

Surely the North Hills elk herd was wilder in Weybright's day than in Cleveland's; it had far fewer animals and less human contact. But, how far toward "defiled-wild" had it fallen since then?

The North Hills fall-winter range is an ideal study area for measuring elk wildness. It contains a patchwork of public and private lands, some open to hunting and some not. In early fall, and longer on some properties, hunting is limited to archery only. During late fall and in "damage hunts" on several ranches, hunters can use rifles. Intermixed are individual homes, residential subdivisions, and protected open space where some landowners do not allow hunting. Cleveland also looked at other elements influencing elk movement and behavior, such as the area's forests and grasslands, storms and drought, and roads or road-free areas.

Thanks to new GPS technology that recorded locations every six hours, Cleveland could see exactly where his collared elk went. He amassed roughly 39,000 "re-observations" of 9 adult female collared elk (the other 12 collared elk did not have GPS

> "That dispersal behavior might seem obvious to hunters, but this was the first time it was documented in the North Hills. It allowed us to show landowners, on maps, just how well hunting works to move elk across the landscape."

MIDDAY AT THE OASIS The North Hills historically has been excellent winter habitat for elk. New irrigated meadows and lush lawns from ranchettes and subdivisions have turned the area north of Missoula into even more of an elk paradise. The challenge for FWP biologists is how to get the animals to move.

Mike Thompson is the FWP regional wildlife manager in Missoula.

trackers). What he and UM assistant professor Mark Hebblewhite found after studying these movements over three years was that elk moved a lot when hunters were around. But within a month or so after hunting season ended, the animals were back to congregating closer to where humans live and where the animals degraded their own habitat and ate forage meant for cattle. "That dispersal behavior might seem obvious to hunters," says Edwards, "but this was the first time it was documented in the North Hills. It allowed us to show landowners, on maps, just how well hunting works to move elk across the landscape."

The study was also able to identify different behaviors among the "wild," "mild," and "defiled" elk for future use by biologists in Missoula and elsewhere. For example, a wild elk should avoid roads, mild elk might avoid them only during hunting season, and defiled elk might be difficult to coax out of the driveway.

"We want elk to maintain their distance from people, and we can use this information to figure out new ways to keep elk acting wild, whether that's by instituting variable hunting seasons at different times of year, or using other human activity—like people out walking their dogs on a leash—to redistribute elk," says Edwards.

Cleveland documented how elk hung out between roughly half a mile and three-quarters of a mile from houses—an intermediate distance given the available longer distances. That means the North Hills elk are willing to live closer to houses than "wild-wild" elk are, but not too close—just near enough to obtain the benefits of lower hunting pressure.

Edwards says this work is extremely valuable to her and other biologists. "Now we have a benchmark," she says. "The North Hills elk are teetering on a very thin line between the minimum level of habituation that they need in order to share their winter range with humans, and the healthy fear of humans they also need so they can continue to be wild and maintain their spring migratory patterns."

One of Edwards's biggest challenges is finding ways for hunters to access North Hills elk in order to keep the population at a healthy level. "That may entail options like restricting hunts near subdivisions to shotgun only, as they've done elsewhere in Montana," she says. (Shotgun slugs don't travel nearly as far as rifle bullets and are thus safer near residences.) Even more important is convincing landowners unwilling to allow public hunting to reconsider so that elk numbers don't mushroom and cause undue depredation and safety problems for them or their neighbors.

Preserving the wildness of elk is a matter of public safety, ranch economics, and hunting traditions. It's also about keeping intact a process that has occurred over thousands of years. If elk stop following the natural eruption of native vegetation into higher elevations of the Rattlesnake each summer, as they have for generations, that means "something natural is broken," Edwards says. "I don't want the North Hills to turn into a place where elk hang around all year and are viewed as pests. That's just unnatural. And so is not having elk go up into the Rattlesnake. It would break my heart if someday a hunter or hiker went up there in September and did not hear an elk bugle."

ELK REFUGE Safe on growing numbers of ranchettes off limits to hunters, the North Hills herd has increased tenfold over the past 30 years. That causes headaches for traditional ranching families in the area as the elk knock down fences and eat forage meant for livestock. A new study has given local wildlife biologists information to justify using early hunts, late hunts, and other options to help reduce elk numbers and keep the animals from congregating.

LEFT TO RIGHT: RON HOFF; PAUL QUENEAU

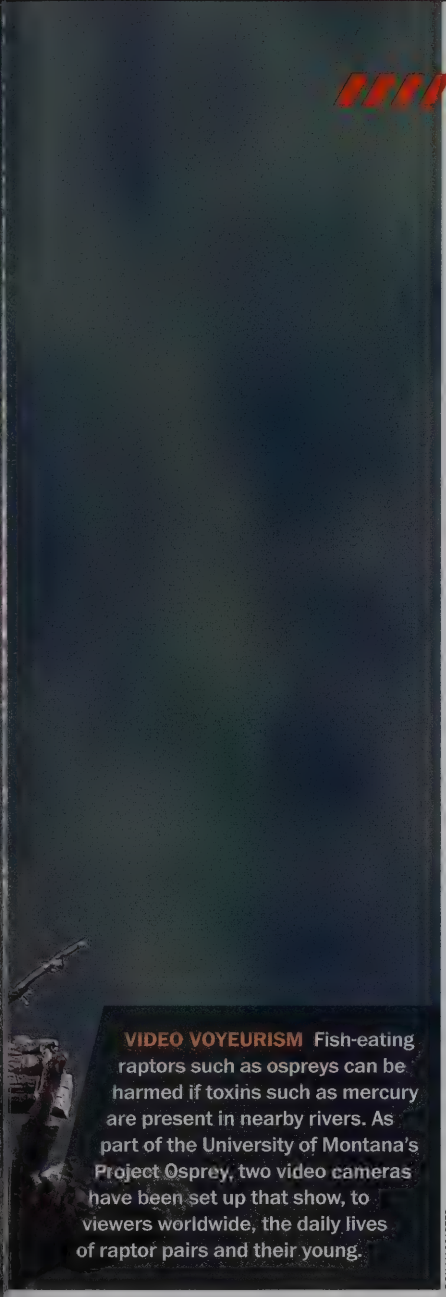
REALITY TV, RAPTOR STYLE

Why is the world watching western Montana ospreys via webcams?

BY DOUG STEWART

"INTEREST HAS TAKEN OFF beyond our wildest expectations," says biologist Erick Greene of the University of Montana in Missoula. With his colleague, environmental chemist Heiko Langner, Greene set up video cameras in two osprey nests in 2010 as part of a university research effort called Project Osprey. "What's astounding, judging from our interactions with the people watching, is that 99 percent of them are not scientists or even interested in birds and other wildlife, but then they get hooked."

The video cameras are, in part, a public-outreach tool of the project, which is gathering data on toxic threats to the birds. Over the years, dangerous heavy metals have leached into local rivers from old mine tailings. The researchers are particularly concerned about mercury that persists in the local environment—a by-product of 100-year-old mining operations in Butte at the headwaters of the Clark Fork River. In the water, mercury



VIDEO VOYEURISM Fish-eating raptors such as ospreys can be harmed if toxins such as mercury are present in nearby rivers. As part of the University of Montana's Project Osprey, two video cameras have been set up that show, to viewers worldwide, the daily lives of raptor pairs and their young.

DON MACCARTER

accumulates in fish, then concentrates further in animals that prey on those fish. Half of the osprey eggs laid near stretches of the Clark Fork where mercury levels are highest fail to hatch. The raptors are considered an icon in western Montana, where a minor league baseball team is called the Missoula Osprey.

WORLDWIDE ATTENTION

Sterling Miller, a retired National Wildlife Federation senior wildlife biologist based in the Missoula area, lives on a small horse ranch on the Bitterroot River where the birds have nested for decades. A few years ago he and his wife SuzAnne volunteered to make the nest a Project Osprey study site, equipped with a second webcam that streams live images on the Internet.

"We had more than 300,000 unique hits at our webcam site last year," he says. The Millers heard from viewers as far away as Japan, England, and Australia, and they recently upgraded their camera to high-definition video.

"For years, we've lived underneath this nest, and for years it has produced chicks," says SuzAnne, a naturalist and experienced raptor-watcher who worked in Alaska for two decades before moving back to her home turf in Montana. "But it wasn't until I was able to watch the ospreys' daily movements and distinguish their individual behaviors that I really became attached to them.

"The male would land in the nest with a fish, then lift up the female's wing with his beak to encourage her to get off the eggs," she says. "It was like he was saying, 'Okay, Dear, your turn. Get some fish. I'll incubate for a while.'"

Last year the female laid three eggs, but none hatched. Mercury is a possible culprit. "People around the world were caught up in the drama of the birds continuing to incubate their eggs, waiting for them to hatch, long after it was clear the eggs were not viable," SuzAnne says.

VIEWERS TO THE RESCUE

Operation Osprey's other live-streamed nest was more successful. The structure overlooks the parking lot of a nursing home in Hellgate Canyon near Missoula. One summer hundreds of thousands of people from around the world watched online as three nestlings screamed deliriously at fish deliveries or listened to their parents vent their fury at encroaching bald eagles.

One of the chicks became entangled in monofilament line from a fish brought back to the nest. Fishing line can quickly strangle a bird. It was a Sunday, and the researchers had not been online to check the nest.

"We were first alerted to the fishing line by an email from a woman in Estonia," says Greene. "Then we heard from a woman in Wales." The researchers had set up a Facebook page for the ospreys, and in no time it became filled with alerts from concerned visitors. Borrowing a truck equipped with a bucket that can rise to the level of the nest, the biologists raced to the scene to cut away the line from the chick and removed a fish hook embedded in its wing. The bird survived.

Both video streams are accessible via Facebook by searching for "osprey cams." They can also be viewed through the Cornell Lab of Ornithology's "All About Birds" website, which streams live video feeds from nests of ospreys as well as great blue herons, red-tailed hawks, and other birds.

BIRDS BECOME TEACHERS

The Montana scientists are amazed that their osprey videos have gone viral. All sorts of unexpected viewers have been drawn to the osprey webcams. One day a speech pathologist in Santa Ana, California, notified the Millers that the entire student body of Garfield Elementary School, 700 strong, was at that moment watching the birds in their classrooms. For nearly an hour afterwards, the students posed questions to the Montana couple via Twitter.

"It was something these kids would typically never be exposed to, because this is a poor, inner-city area," says Charlene Rus, the instructor who introduced the webcam to students. "It has become a valuable tool in my work."

When school resumed the following fall, several students told Rus they had watched the ospreys regularly throughout the summer. "These are kids who see gang violence in the alleys behind their apartments," Rus says. "So to be able to have a webcam to take them out of that situation is something the kids have really latched onto."

View the webcams:

Montana Osprey Project

cas.umt.edu/geosciences/osprey/

Note that osprey activity occurs April through September only.

Massachusetts writer Doug Stewart has written for Smithsonian, Time, Discover, *and* National Wildlife, *where this article first appeared.*

On the open plains of eastern Montana, wildlife advocates want to restore free-ranging bison. Livestock producers strongly oppose the idea. What's a ranch-owning hunter to do?

BY ANDREW MCKEAN

BUTTING HEADS OVER

BISON

BISON CALF BY NELSON KENTER

The badlands and sagebrush prairies south of my house, where I hunt mule deer and graze cow-calf pairs with my neighbors, don't look like a battleground.

But this folded sea of gumbo knobs, prickly pears, and dust devils is the setting for a gathering conflict that pits wildlife advocates against ranchers. Though both sides have been clashing over various issues for a long time, what's different about the bison discord is how it stitches together three very different eras: the old West of cowboys and Indians, the current West of graduate-degree ranchers and pedigreed cattle, and the new West of ecologists who see in this wide, empty land a perfect place to restore the keystone native species of the plains.

At the heart of the battle are bison, and the question of whether or how to return free-ranging bison to public grasslands in eastern Montana. This conflict divides my little town of Glasgow. It pits hunters, who would like the chance to pursue buffalo in the same places they now hunt antelope, against ranchers, who view the wild bovines as competition for grass and a threat to the fences that hold their cattle. And it divides me, equal parts conservation-minded hunter and taxpaying rancher.

The issue isn't an abstraction. There is a pressing need to find a permanent home for hundreds of wild bison that have overpopulated the fragile mountainous habitat of Yellowstone National Park, 300 miles to the southwest. Wildlife agencies and private conservation groups suggest that these surplus animals—some of the last genetically pure bison remaining on the planet—should be returned to the Great Plains, where tens of millions of their ancestors lived until a century ago. Returning bison as apex herbivores, they say, will promote grassland health and biodiversity.

Ranchers and others who depend on the cattle economy say the appropriate fate of these wild bison—"wooly tanks," some call them, for their habit of running through fences—is a slaughterhouse, not relocation. They worry that the Yellowstone animals could spread brucellosis, a disease endemic to the park's bison that can cause beef cattle to abort their calves. Fundamentally, they say, there is no longer room in the West for wild buffalo. Barbed wire and homesteads have replaced itinerant Indian tribes and frontier hide hunters. And free-ranging bison.

But there's a larger threat. Ranchers worry that wild bison could displace cattle from the range and upend the fragile cow-country economy that relies on subsidized livestock grazing on public land. They recall the last time bison were in the headlines. It was the 1980s, when the idea of the "Buffalo Commons" was circulating. That was a proposal to

"rewild" the plains, replacing humans with bison and prairie dogs to restore ecological balance and create a potentially appealing tourist destination.

It's important to keep that context in mind anytime bison are mentioned here. To traditional ranchers, a bison isn't just a wild cow. It's code for the systematic dismantling of the ranching culture. But bison are equally emblematic to wildlife advocates, who view the animals as the single species capable of restoring wildness to one of the largest ecosystems on the continent, the short-grass prairie that stretches from central Canada south to Oklahoma.

Of course, these Great Plains have been irreversibly altered in the two centuries since Lewis and Clark paddled through here and marveled over endless herds of buffalo. Many grasslands have been converted to grain fields, and beef cattle have replaced bison as the bovines that define the region.

"We don't talk about bringing back the dinosaurs, but that's exactly what big herds of free-roaming buffalo are," John Brenden, a Montana state senator and a leading bison opponent, told the Associated Press. "Their time has passed."

Andrew McKean of Glasgow is the editor of Outdoor Life, *in which this article originally appeared.*

WHICH GRAZER GETS THE GRASS? If bison end up on Bureau of Land Management property, conservationists might urge the agency to amend its grazing permits to include the wild bovines. Ranchers understandably worry that if that happened, in dry years there wouldn't be enough forage to go around and their cattle would lose out.

My backyard

A few sizeable sections of the plains are relatively unchanged since the mastodons, and bison later occupied that landscape. The area happens to be my backyard, an empire of sagebrush that sprawls from the Missouri River north to the Canadian border in eastern Montana. It is predominantly public land, managed by the Bureau of Land Management (BLM).

There are reminders here of the historic presence of bison, if you know where to look. You can find bison skulls in the eroded banks of prairie streams. The edges of car-sized granite boulders, left on the open prairie by retreating glaciers, are polished smooth by generations of hip-scratching bison. And below some of the steepest scarps you can sometimes find drifts of bison bones and stone spear points, relics of prehistoric buffalo jumps and butchering parties.

There's a certain wildness to this country

The "Left-Behind" Species

Shipping bison to a zoo in the early 1900s to help save the species. WILDLIFE CONSERVATION SOCIETY

American hunters are proud of saying that we brought back the nation's wildlife species from the brink of extinction. Most of the animals we love to hunt—whitetails, wild turkeys, elk—recovered because hunting licenses funded professional management and we agreed to restrain ourselves through bag limits and season structures.

But one species—America's bison—took a different path to recovery, and the current struggle over where to continue that restoration goes back to decisions made at the dawn of the nation's wildlife conservation movement.

The bison was the species that jump-started that movement. Back in the 1880s, just two decades after visitors to the West described limitless herds of the animals, it appeared that buffalo would be exterminated from the planet. Hide hunters slaughtered them, railroads and homesteads fragmented their range, and soldiers killed

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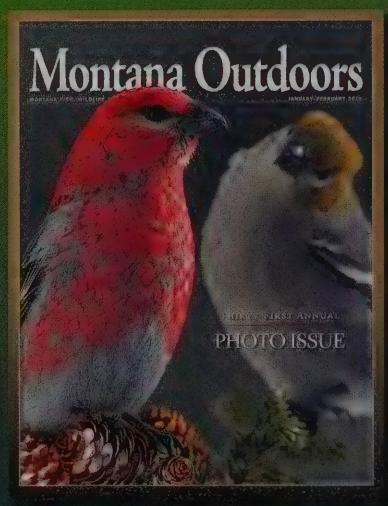

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that attracted me and keeps me here in the heart of a hunter's domain. But nearby there's a satisfying sense of order, too, imposed by ruler-straight section-line fences, miles-long strips of durum wheat, and close-knit communities that promote inclusion and a sense—expressed as a sort of pioneer pride—that the rest of the world has forgotten us out here on this last American frontier.

Still essential to tribes

Another culture that shares these plains with ranchers is on the opposite side of the bison issue.

They're American Indian tribes—Sioux, Assiniboine, and Gros Ventre—that have been lobbying to receive many of Yellowstone National Park's surplus bison. Tribal leaders find themselves in a new range war with ranchers as they try, through the courts and the Montana Legislature, to enable the restoration of wild bison to reservations as well as nontribal public lands.

For Indians, bison are as essential now as they were 130 years ago, when the animals' removal hastened the end of free-ranging tribes and spawned the modern reservation culture. Tribes want to restore bison herds to feed and employ tribal members and give them a sense of historical completion, their gift to a species that for centuries gave prairie tribes food, shelter, and a world view that revolved around the hides and horns and meat of buffalo.

"Bison are a connection to our ancestors," says Mark Azure, director of fish and wildlife on the Fort Belknap Indian Reservation west of Glasgow.

Conservationists are mostly on the Indians' side, and they think they have found the right moment and place to begin the restoration. They want to translocate a herd of Yellowstone National Park bison to the 1.1 million-acre Charles M. Russell (CMR) National Wildlife Refuge in the Missouri River Breaks. This first step is actually pretty sensible—wildlife refuges are mandated with managing native wildlife, and nothing could be more native (or in need of management) in eastern Montana than wild bison. The CMR is already known for its world-class elk, mule deer, and bighorns, and it's not a reach to imagine that a huntable herd of wild bison could live here, too.

But what excites conservationists, and troubles ranchers, is that the CMR represents a foothold on the plains that could enable bison to be returned to a wider landscape, one occupied mainly by cattle. Much of the prairie north of the CMR all the way to the Canadian border—an area nearly the size of Indiana—is managed by the BLM, whose principal function is to award permits allowing ranchers to graze cattle on public lands. Many conservationists are urging the

them to deprive warring Indian tribes of their main food source.

By some estimates, the number of bison plummeted from between 30 and 60 million in 1880 to fewer than 1,100 in 1890.

Leaders of the nascent conservation movement—Theodore Roosevelt, William Hornaday, and J.A. McGuire (founder of *Outdoor Life*) among them—concluded that the way to save America's buffalo was to round them up and protect them in zoos. Only by creating a captive population of breeding bison would the species be saved, these early conservationists determined.

The few remnant wild bison outside of Yellowstone National Park were corralled at the Bronx Zoo in New York City—the model for the U.S. Mint's iconic buffalo nickel was one of the captives—and the offspring of these survivors were sent to other zoos around the country. Over generations, these bison lost their wildness, and their genes became diluted as they were interbred with cattle, first at zoos and later on private livestock ranches where surplus bison were shipped.

Conservationists—including members of the American Bison Society, founded in 1905 by Theodore Roosevelt—call bison the "left-behind" species because of that decision to institutionalize them rather than work to return them to functional landscapes.

With few exceptions, the source of many of the nation's private bison herds is the offspring of these captive animals, which became more domesticated with each generation. That helps explain why, in many states, bison are considered livestock. And it helps explain why the pure bloodline and the relatively wild nature of Yellowstone National Park's bison are so valuable to those who would repopulate the plains with this icon of the American West. ■ —*A.M.*

DIVERGENT VIEWPOINTS Above: Local sentiments in Phillips County. Many Montanans bristle at the notion that bison should be restored to the animals' native landscape. Below: Yet many Montanans also support the idea of having bison join elk, deer, pronghorn, wild sheep, and other species on the Great Plains where they lived for thousands of years. And where they could be hunted like other game animals. The big question: Can bison and cattle coexist?

BLM to amend these coveted grazing permits—traditionally passed down from generation to generation of the same ranch family and fundamental to the financial security of most Western ranches—to include wild bison. In dry years, there wouldn't be enough grass to feed both beef and bison, and ranchers worry that if buffalo are allotted some of this precious forage, their cattle could lose out.

Sustainable solution

As a hunter, I anticipate the opportunity to someday draw a tag to hunt a wild bison.

I think limited numbers of bison could roam here, in small scattered herds whose numbers and movement could be controlled through public hunting. That management strategy has worked elsewhere, in Utah's Henry Mountains and South Dakota's Black Hills, where ranchers grudgingly share the range with bison. I'm convinced that, given the opportunity, hunters would flock here from around the world for a chance to hunt wild bison in places they haven't roamed in 130 years. That revenue could be good for our rural economy.

But as a rancher, I share my neighbors' worries about competing with herds of wild bison for precious grass. I worry about my fences, as well as my liability should a herd of wild-eyed "wooly tanks" tear through one, allowing my cows to graze my neighbor's high-dollar wheat. I worry about my county's tax base, and our ability to fund schools and roads, if the ag economy dries up.

The sustainable solution is probably between the two poles, but the battle lines in my town are so stark that it's hard to hold a rational conversation about bison management here. A friend of mine, a banker who helped arrange the loan for me to buy my ranch, told me that he could no longer do business or be seen socially with me if I publically endorse bison relocation.

My friends in the conservation community can't understand why I'm not fully supportive of bison restoration. But they don't live in a town where pickups are festooned with bumper stickers that say, "Don't Buffalo Me" and "No Federal Land Grab." And they don't own a ranch that depends on federal grazing leases.

Walk into almost any rancher's house in Montana and you might see some reverential nod to bison. It could be a weathered skull dug out of a cutbank and now decorating a mantle. Or it might be a faded Charlie Russell print of bison grazing the fenceless plains, framed on the dining room wall. Even Montana's license plate features an iconic bison skull.

That's how many eastern Montanans would like to keep bison: as artifacts and hollow-eyed skulls. Meanwhile, Yellowstone National Park's surplus bison keep growing in number, waiting for a future that could bring either a kill-floor bolt to their head or a return to the open plains of their ancestors.

Bison Management in Montana

In July 2013 the Montana Supreme Court validated a proposed transfer of bison between tribal lands on the Fort Peck and Fort Belknap Reservations. In August 35 bison were moved to the Fort Belknap tribal lands from Fort Peck. The Supreme Court decision and the tribal activities raised questions by the public about bison management in Montana.

Bison management by the State of Montana falls into three categories: bison around Yellowstone Park (YNP), bison on nontribal lands in the rest of the state, and bison on tribal lands.

CULTURAL VALUES Bison transferred from the Fort Peck Reservation are released into a 900-acre fenced field on Fort Belknap Reservation in August 2013.

- **Yellowstone bison:** Bison that migrate into Montana from YNP are managed by three federal and two Montana agencies (FWP and the Department of Livestock) under a court-ordered agreement. Under a management plan, the state agencies are considering allowing bison some degree of movement outside the park's west and north boundaries. On the west side, the proposal could allow bison to range from the Hebgen Basin to as far north as the Taylor Fork drainage, but not into the Gallatin

UNCERTAIN FUTURE
The bison is the iconic wild animal of the American West. Will it one day return to the land where Indians once hunted and pioneers found them by the millions? Or will Montana's buffalo remain only on license plates and old nickels?

Canyon. On the north side, this proposal could allow for bull bison to be present in the Gardiner Basin.

FWP has held public meetings on the proposal in Gardiner, Lewistown, and West Yellowstone, and a draft environmental review was released in July. This past September the department hosted a two-day meeting of individuals and groups with different opinions on future bison management. "Our aim was to foster better understanding of the various positions," says Jeff Hagener, FWP director.

▸ **Outside the Yellowstone area:** On nontribal lands in the rest of Montana, FWP has no current plans to move bison anywhere, says Hagener. "But we believe it's critical to take a statewide look at bison management in Montana, and we've started a planning process to explore the future of wild bison," he says. In 2012 FWP held eight public meetings around the state, and received more than 20,000 comments. "There are no predetermined outcomes to this statewide planning process," says Hagener.

If bison movement is contemplated in the future, FWP would convene a local working group to provide input and develop an area-specific management plan, all through a public process. "This process would occur before any bison under FWP jurisdiction were released on private or public land in Montana, and the owner of that land would have to authorize any such release," Hagener says.

"We believe it is important to undertake an open and honest planning effort to determine the course of bison management in Montana," adds Hagener. "And we are committed to an inclusive process that allows all interests to weigh in and take part in public forums that provide for reason and respect."

▸ **Tribal lands:** Native American tribes have expressed strong interest in obtaining wild bison for restoring cultural and subsistence values. Hagener says that no bison will be moved to tribal lands by the State of Montana without extensive brucellosis testing and specific management measures agreed to by the parties, as was done with the bison moved from YNP to Fort Peck lands in 2012. There are currently no plans to move additional bison to other reservations. ■ *—FWP News Reports*

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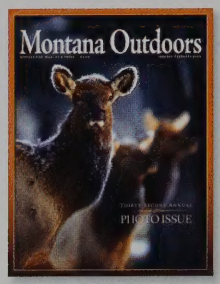
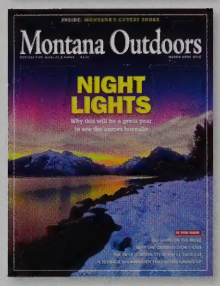


JANUARY–FEBRUARY 2013

Annual photography issue

MARCH–APRIL 2013

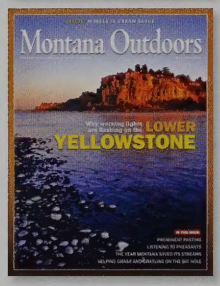
Much Too Short a Visit Several woodland caribou that entered northwestern Montana from Canada last spring met a grim fate. Will future incursions by these native-but-now-absent big game animals last longer? By Daniel Person



Transformers The bizarre life history of Montana's barred tiger salamanders. By Paul J. Driscoll

Incredible Journeys Many big game animals must migrate to survive. For growing numbers, that's getting harder each year. By Jim Williams and Tom Dickson

Light Up the Night Why 2013 will be the best year in a long time for viewing Montana's spectacular aurora borealis. By Samuel Veich



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Good for Grass, Good for Grayling An innovative new conservation agreement could help save an imperiled fish while easing pressures on Big Hole ranchers. By Ben Romans. Photos by Thomas Lee

Counting Crows FWP wildlife biologists listen closely each May to get a fix on pheasant populations. By Parker Heinlein

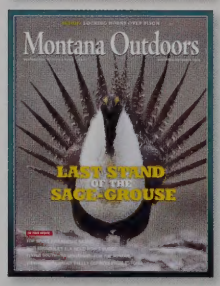
Yellow Light on the Yellowstone FWP proceeds with caution as it works to maintain the lower Yellowstone River's diverse native fishery in the face of diversion dams, water withdrawals, and growing numbers of anglers. By Parker Heinlein

Peak Pleasures A desire to keep lists and explore high elevations drives peakbaggers to reach one summit after another. By Ted Brewer

Bridging the Divide Fifty years ago, Montanans came together and decided that streams were worth saving. By Tom Dickson

JULY–AUGUST 2013

Special Issue: The Best 100. What are the essential experiences that allow a person to say, Yes, I've seen and fully taken part in the best of what Montana's outdoors has to offer? We received hundreds of suggestions, then narrowed those down to what we're calling the "Best 100."



SEPTEMBER–OCTOBER 2013

When Big Game Was Big Short-faced bears standing 12 feet tall, massive dire wolves, mammoths weighing up to 10 tons—at one time hunting in Montana was a highly dangerous necessity. By Hal Herring

They Know You're Coming New University of Montana research shows that a hunter's stealthy approach may set off wildlife alarm bells the moment he or she enters the forest. By Joe Nickell

Humbled by Huns These fast-flying prairie imports can confound even the most skilled wingshooters. By Dave Books

More Fangs in the Forest Montana is home to higher numbers of large carnivores today than any time since the 19th century. Now what? By Tom Dickson

Too Many Misses A nontoxic-shot ballistics expert helps bird hunters hit their targets. By Tom Dickson

Beckman's Big Surprise How a reclusive millionaire's commitment to mule deer and public hunting access created central Montana's newest wildlife management area. By Dave Carty. Photographs by Jason Savage

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We're So Outta Here The wide variety of migrations from, through, and even to Montana each winter. By Dave Carty

Where Can Sage-Grouse Live? Why good grazing practices and more state and federal land-use regulations are essential for keeping these beleaguered birds off the endangered species list. By Tom Dickson

Top Spots for Skinny Skis Skiing the state's best groomed cross-country trails. By Becky Lomax

Are Missoula's Elk Too Tame? A recent study is helping FWP find ways to manage an exploding population in the city's northern suburbs. By Mike Thompson

Reality TV, Raptor Style Why is the world watching western Montana ospreys via webcams? By Doug Stewart

Butting Heads over Bison On the plains of eastern Montana, wildlife advocates want to restore free-ranging bison. Livestock producers strongly oppose the idea. What's a ranch-owning hunter to do? By Andrew McKean

BACK ISSUES

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Bohemian Waxwing

Bombycilla garrulus

By Ted Brewer

Few encounters with birds stand out in my memory as strongly as the time a flock of several dozen waxwings possessed a mountain ash in my family's yard. It was a snowy winter day, and within minutes the "ear-full" (as groupings of waxwings are sometimes called) denuded the tree of its berries, plucking and then gobbling them whole. Almost as quickly as they mobbed the tree, they fled, true to the thief's mask that outlines the bird's eyes.

I don't know for certain if they were Bohemian or cedar waxwings. Since it was winter, they likely were Bohemians. These birds are strictly wintertime visitors to Montana and other western and midwestern states (migrating as far south as central California and northern Arizona). They begin arriving here from northern Canada in late October.

Cedar waxwings breed throughout the northern-tier states, including Montana. They aren't nearly as abundant in winter as in summer because the majority migrates to southern states and Mexico when the weather cools. Most cedars leave Montana by mid-October and don't return until May.

Identification

All waxwings are medium-sized, brownish-gray birds with a black face mask, feathered head crest, and tail tips that look like they were dipped in yellow paint.

Figuring out whether a waxwing is a Bohemian or a cedar can be difficult without binoculars. The Bohemian waxwing's belly is grayish rather than yellowish, and its undertail is cinnamon, unlike the white of the cedar's. Another identification tip is to look at the upperwings. The Bohemian has white markings and the cedar does not. Averaging 8 inches, Bohemians are also longer than cedars by about an inch.

Males and females of both species are nearly identical. The female is slightly smaller and has a smaller black chin patch. She also has fewer of the red waxy beadlike tips on her secondary wing feathers (for which the birds get their name).

Ted Brewer is a writer in Helena.

JAIME AND LISA JOHNSON

Scientific name

The generic name ***Bombycilla*** is from the Latin *bombyx* ("silk") and *cilla* ("tail") and refers to the bird's silky-soft plumage. The species name ***garrulus*** (Latin for "chatter") is related to the English word "garrulous," meaning "extremely talkative," and refers to the bird's incessant, high-pitched trill–especially when in large flocks–which has been compared to the sound of a field of baby crickets.

Diet

Though a waxwing eats many insects in summer, berries rule the bird's winter menu, accounting for roughly 95 percent of its diet then. Both the Bohemian and cedar eat the berries of just about any tree or bush, especially mountain ash, juniper, holly, winterberry, sumac, and crab apple. It's not unusual to see their beaks smeared with berry juice.

Waxwings occasionally get drunk on fermented berries and then fly erratically, sometimes even crashing into windows.

Breeding

Bohemian waxwings nest in open conifer and mixed-conifer forests, especially the taigas of northern Canada and Alaska. True to the wandering connotation of its English name—Gypsies were also known as Bohemians, or people who had roamed westward from the central European region of Bohemia—the species does not defend breeding territory. That's why Bohemian waxwings have no territorial call. Because the birds depend on berries, a food source only temporarily available wherever waxwings happen to be, they are always moving and have no territory to protect.

Females lay four to six eggs. Incubation lasts about 14 days. The young are able to fly from 13 to 16 days after hatching.

Movements

Bohemian waxwings are an irruptive species, meaning they move in unpredictable migration patterns from year to year, often in huge numbers, depending on berry supplies. The birds gather in large winter flocks and will descend on a mountain ash or other tree. The noisy birds feed voraciously until nearly all berries have been consumed, sometimes within just a few hours, before heading to another tree.

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PARTING SHOT

SNOW FALL Siblings enjoy a tumble while cross-country skiing in western Montana. Find the state's top spots for groomed classic and skate Nordic skiing on page 24. Photo by Erik Petersen.

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